



9109

Drinking Water Surveillance Program

**LAKE HURON
WATER SUPPLY
SYSTEM**

Annual Report 1988



Ontario

**Environment
Environnement**

Jim Bradley, Minister

LAKE HURON
WATER SUPPLY SYSTEM

DRINKING WATER SURVEILLANCE
PROGRAM

ANNUAL REPORT 1988

FEBRUARY 1990



RECYCLABLE

Copyright: Queen's Printer for Ontario, 1990
This publication may be reproduced for non-commercial purposes
with appropriate attribution.

EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

LAKE HURON WATER SUPPLY SYSTEM 1988 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 52 plants are being monitored.

The Lake Huron Water Supply System is a conventional treatment plant which treats water from Lake Huron. The process consists of coagulation, flocculation, sedimentation, filtration and disinfection. Treated water from this plant is pumped to London where it is fluoridated prior to distribution. This plant has a design capacity of 345.5 x 1000m³/day and serves a population of approximately 295,000 people.

Samples of the raw and treated water, the Arva Reservoir and from two distribution system sites were taken on a monthly basis. The Lake Huron Water Supply System was sampled for approximately 160 parameters monthly in 1988. Parameters were divided into the following groups: Bacteriological, Inorganic and Physical (Laboratory Chemistry, Field Chemistry and Metals) and Organic (Chloroaromatics, Chlorophenols, Pesticides and PCB, Phenolics, Polynuclear Aromatic Hydrocarbons, Specific Pesticides and Volatiles). Chlorophenols and Specific Pesticides were analysed in June and November only.

A summary of results is shown in Table 1.

All Inorganic and Physical parameters (Laboratory Chemistry, Field Chemistry and Metals) were below any applicable health related ODWOS.

Of a total of approximately 110 Organic parameters tested for on a monthly basis, none exceeded health related guidelines.

During 1988 the DWSP sampling results indicated that the Lake Huron Water Supply System produced good quality water at the plant and this quality was maintained in the distribution system.

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS)

SUMMARY TABLE BY SCAN

SCAN	TESTS	RAW	TREATED 1			TREATED 2			SITE 1			SITE 2		
			POSITIVE	XPOSITIVE	TESTS	POSITIVE	XPOSITIVE	TESTS	POSITIVE	XPOSITIVE	TESTS	POSITIVE	XPOSITIVE	TESTS
BACTERIOLOGICAL	39	30	76	41	8	19	41	7	17	23	3	13	3	0
CHEMISTRY (FLD)	36	36	100	68	68	100	63	63	100	40	40	100	17	17
CHEMISTRY (LAB)	226	172	76	225	158	70	236	177	75	128	96	75	69	59
METALS	265	124	46	288	123	42	288	100	34	168	69	41	94	42
CHLOROCARBOXYMATICS	154	0	0	168	0	0	154	0	0	98	0	0	28	0
CHLOROPHENOLS	12	0	0	12	0	0	0	0	0	-	-	-	-	-
PAH	187	0	0	204	0	0	187	0	0	-	-	-	-	-
PESTICIDES & PCB	362	0	0	396	0	0	362	0	0	230	0	0	66	0
PHENOLICS	10	2	20	12	1	8	12	1	8	-	-	-	-	-
SPECIFIC PESTICIDES	56	0	0	56	0	0	22	0	0	0	0	0	0	0
VOLATILES	288	6	2	316	40	12	287	42	14	171	26	15	57	8
TOTAL	1635	370	1786	398	1652	390	858	234	334	126				

NO HEALTH RELATED GUIDELINES WERE EXCEEDED

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE

A "-" INDICATES THAT NO SAMPLE WAS TAKEN

DRINKING WATER SURVEILLANCE PROGRAM

LAKE HURON WATER SUPPLY SYSTEM

1988 ANNUAL REPORT

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 52 plants are being monitored.

The DWSP was initiated at the Lake Huron Water Supply System, which supplies the City of London, in the summer of 1986. Annual reports were published for 1986 (ISBN 0-7729-2558-5) and 1987 (ISSN 0840-5271).

This report contains information and results for 1988.

PLANT DESCRIPTION

The Lake Huron Water Treatment Plant is a conventional treatment plant which treats water from Lake Huron. The process consists of coagulation, flocculation, sedimentation, filtration and disinfection. Treated water from this plant is piped 46.4

kilometers to the Arva Reservoir in London where it is fluoridated prior to distribution. The Lake Huron Water Supply System has a design capacity of $345.5 \times 1000 \text{ m}^3/\text{day}$ and flows for day of sampling ranging from $145 \times 1000 \text{ m}^3/\text{day}$ to $216 \times 1000 \text{ m}^3/\text{day}$. The supply serves a population of approximately 295,000.

The plant location is shown in Figure 1. Plant process details, in a block schematic, are shown in Figure 2. General plant information is presented in Table 2.

METHODS

Water samples were obtained from five DWSP approved locations:

- i) Plant Raw - The water originated from the lowlift pump prior to chlorination and was sampled through a stainless steel line. The sample tap is located by the lowlift discharge.
- ii) Plant Treated (Treated 1) - The water originated from the highlift suction header and was sampled through a stainless steel line. The sample tap is located by the highlift suction header.
- iii) Arva Reservoir (Treated 2) - The water originated from the Arva Reservoir in London and was sampled through a stainless steel line. The location of the sample tap is unavailable.

FIGURE 1

DRINKING WATER SURVEILLANCE PROGRAM

SITE LOCATION MAP

LAKE HURON WATER SUPPLY SYSTEM

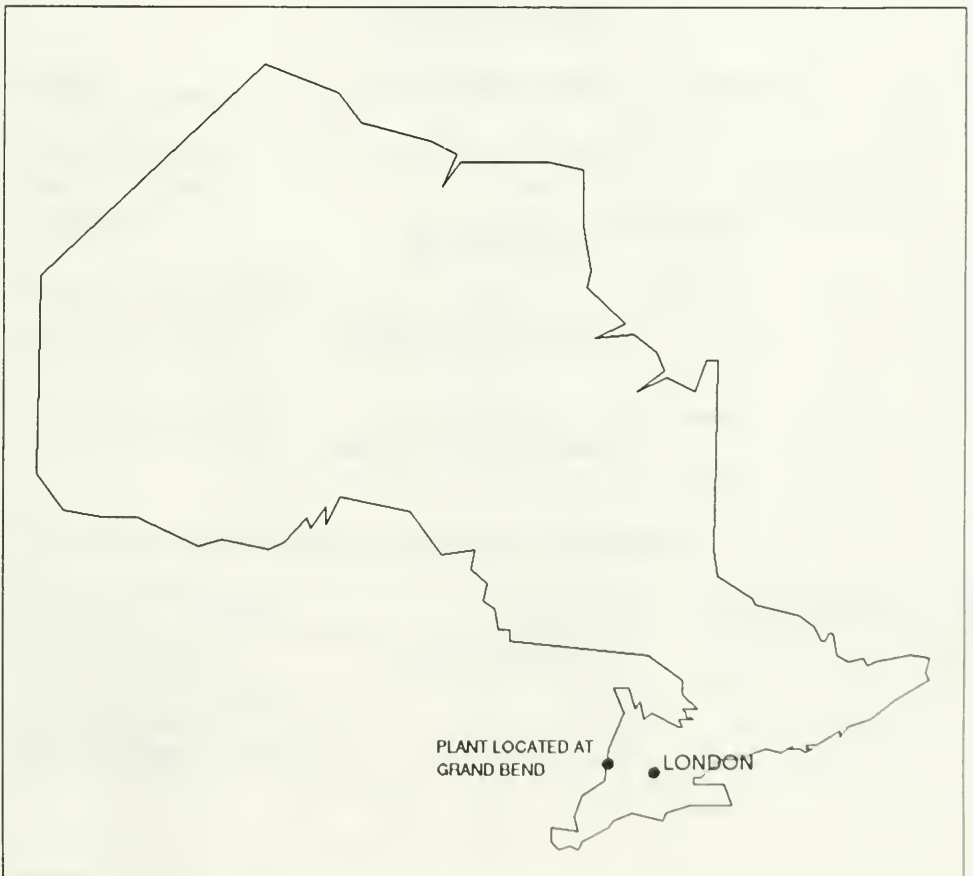


Figure 2

LAKE HURON WATER SUPPLY SYSTEM

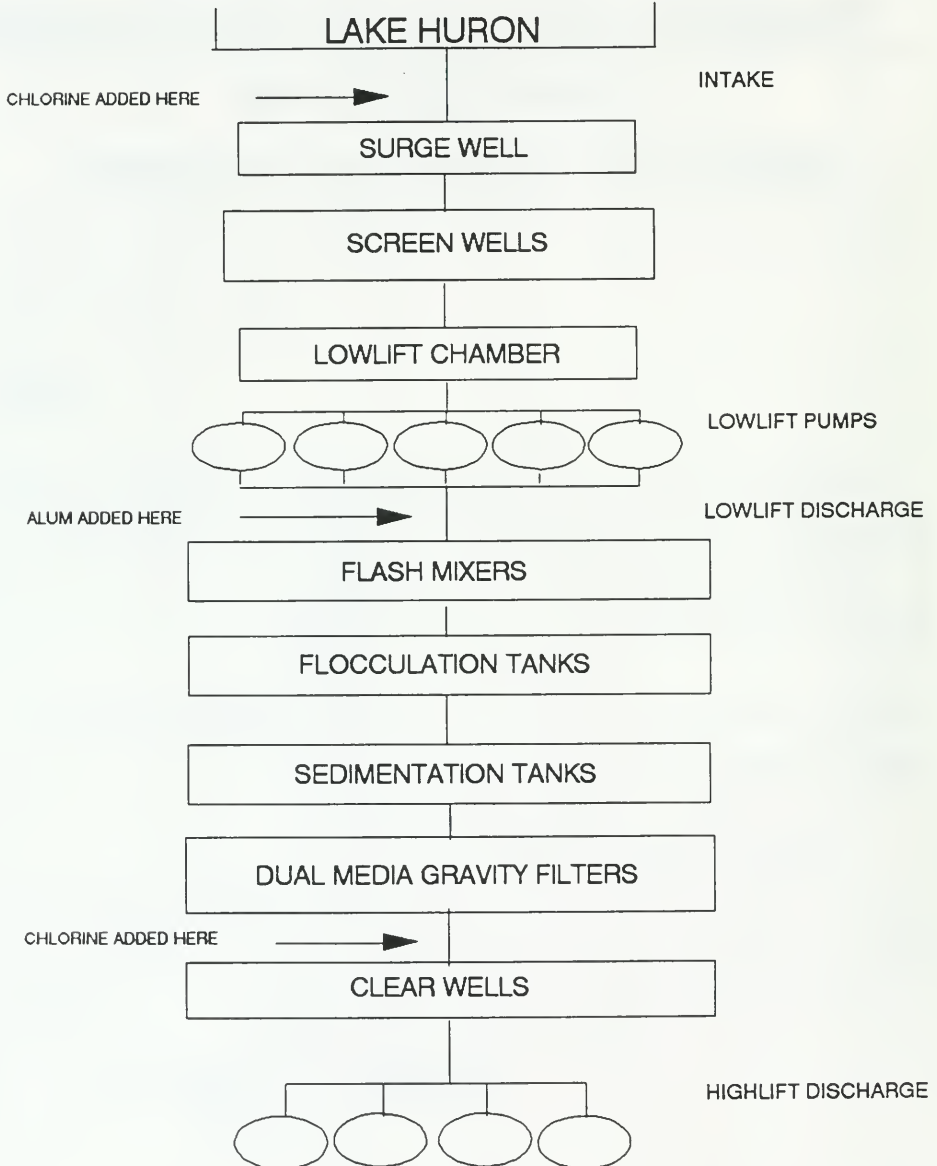


TABLE 2

DRINKING WATER SURVEILLANCE PROGRAMGENERAL INFORMATIONLAKE HURON WATER SUPPLY SYSTEM

<u>LOCATION</u>	P.O. BOX 40 GRAND BEND, ONTARIO NOM 1T0 (519-238-8466)
<u>SOURCE</u>	RAW WATER SOURCE - LAKE HURON
<u>RATED CAPACITY:</u>	345.5 1000 M ³ /DAY
<u>OPERATION:</u>	MINISTRY OF ENVIRONMENT
<u>PLANT SUPERINTENDENT:</u>	A. SCOTT
<u>MINISTRY REGION:</u>	SOUTHWEST
<u>DISTRICT OFFICER:</u>	J. MANUEL

<u>MUNICIPALITY SERVED</u>	<u>POPULATION</u>
CITY OF LONDON	260,000
VILLAGE OF ILBERTON	4,765
VILLAGE OF AILSA CRAIG	831
TOWN OF PARKHILL	1,347
LONDON TOWNSHIP	1,958
M ^C GILLIVRAY TOWNSHIP	1,820
STEPHEN TOWNSHIP	4,204
WEST WILLIAMS TOWNSHIP	952

iv) Distribution System (Site 1) - The distance that this house is from the plant is unavailable but it receives its water prior to the Arva Reservoir. Water was sampled through copper plumbing from the basement laundry tap.

v) Distribution System - Site 2 - The distance of this house from the plant is unavailable. It receives water from the Arva Reservoir. Water was sampled through copper plumbing from the basement laundry tap.

Sample lines in the plant were flushed prior to sampling to ensure that the water obtained was indicative of its origin and not residual water standing in the sample line.

At all distribution system locations two types of samples were obtained: a standing and a free flow. The standing sample consisted of water that had been in the household plumbing and service connection for a minimum of six hours. These samples are used to make an assessment of the amount by which the levels of inorganic compounds and metals may be changed on standing due to leaching from (or deposition on) the plumbing system. The only analysis carried out on the standing samples therefore are General Chemistry and Metals. The free flow sample represented water from the distribution main that had been flowing at the sample tap for five minutes before being sampled.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. The retention time was calculated by dividing the volume of water between the two sampling points by the sample day flow. For example, if it was determined that the retention time within the plant was five hours then there would be a five hour interval between the raw and treated water sampling. Similarly, if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site would be sampled one day after the treated water at the plant.

Stringent DWSP sampling protocols were followed to ensure that all samples were taken in a uniform manner.

Sample day flow, treatment chemical dosages and field measurements such as Turbidity, Chlorine Residuals, pH and Temperature were recorded on the day of sampling and were entered onto the DWSP data base as submitted.

RESULTS

The Lake Huron Water Supply System was sampled at the plant and the Arva reservoir for approximately 160 parameters on a monthly basis. Sampling of the distribution system sites was very erratic. The Specific Pesticides and Chlorophenols were sampled in June and November only. Polynuclear Aromatic Hydrocarbons and Phenolics were

only analysed in the raw and treated water at the plant. As a result of an unforeseen emergency the laboratory capacity was exceeded and analysis for volatiles could not be carried out when the samples were received. Since analysis for volatiles is no longer valid after four weeks of storage, volatile results for February are not available.

Table 3 contains information on the sample day retention time, flow rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples analysed by parameter and by water type. The number of times that a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

Table 6 lists all parameters analysed in the DWSP.

Associated guidelines and detection limits are also supplied on tables 5 and 6. Parameters are listed alphabetically within each scan.

DISCUSSION

General

Water quality is judged by comparison with the Ontario Drinking Water Objectives (ODWOs) as defined in the 1984 publication (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters, which are currently under review. When an ODWO is not available guidelines/limits from other agencies are consulted. The Parameter Listing System (PALIS) recently published (ISBN 0-7729-4461-X) by the MOE catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

Although some of the parameters measured on DWSP may be present in the raw and treated water as a result of pollution, many of the compounds detected are naturally occurring or are treatment by-products.

Plant operational personnel address occurrences of taste and odour or biological water quality parameters. The DWSP does not assess these aspects of the water supply.

As stated under Results, traces do not indicate quantifiable values, as defined by established MOE Laboratory analytical reporting protocols. While they can be useful in trend analysis or confirmation of the presence of a specific contaminant that is repeatedly detected at these levels, the occasional finding of a trace level of a contaminant is not considered to be significant.

DISCUSSION OF GUIDELINES AND LIMITS THEREFORE, IS ONLY CONDUCTED ON POSITIVE RESULTS.

Bacteriology

Positive bacteriological results were present eighteen times in the treated and distributed water. These results were Standard Plate Count, Total Coliform and/or Total Coliform Background. Total Coliforms at 2 counts/100mL were detected in the September sample from the Arva reservoir. No ODWOs were exceeded.

Guidelines for bacteriological sampling and testing of a supply are developed to maintain a proper supervision of its bacteriological quality; the routine monitoring program usually requires the taking of multiple samples in a given system. Full interpretation of bacteriological quality cannot be made on the basis of single samples. Further, bacteriological limits were developed in acknowledgement that the presence of coliforms may be detected due to their non-uniform distribution throughout the distribution system and the fact that their enumeration is subject to

considerable variation. For these reasons, the occasional finding of low numbers of coliform organisms is not unexpected. Routine bacteriological monitoring, as outlined in the ODWOs is carried out by the operating authority.

Inorganic and Physical Parameters

Laboratory and Field Chemistry

The results for the Laboratory Chemistry and Field Chemistry scans were below all applicable health related ODWOs.

Turbidity in water is caused by the presence of suspended matter such as clay, silt, colloidal particles, plankton and other microscopic organisms. The most important potential health effect of Turbidity is its interference with disinfection in the treatment plant and maintenance of a chlorine residual. The ODWO of 1 Formazin Turbidity Unit (FTU) is only applicable to treated water leaving the plant.

It is desirable that the Temperature of drinking water be less than 15°C; the palatability of water is enhanced by its coolness. A temperature below 15°C will tend to reduce the growth of nuisance organisms and hence minimize associated taste, colour, odour and corrosion problems. The temperature of the delivered water may increase in the distribution system due to the warming effect of

the soil in late summer and fall and/or as a result of higher temperatures in the source water. The desired ODWO was exceeded twelve times in the treated water and free flow distributed water.

As part of the treatment process HydroFluosilicic Acid is added to the treated water (Table 3) at the Arva reservoir. Where fluoridation is practiced, the Fluoride concentration recommended in the ODWOs is 1.2 mg/L, plus or minus 0.2 mg/L. Maintenance of this level can generally be observed in the Fluoride levels in the reservoir, except fluoride was underdosed in April and August as indicated by the low Fluoride levels present in the water on these dates and the values provided in Table 3. Site 1 is located before the fluoridation step and there are insufficient samples from Site 2 to determine if the distributed water consistently contains the recommended levels.

The ODWO recommend a hardness level of between 80 and 100 mg/L as calcium carbonate for domestic waters, to provide an acceptable balance between corrosion and incrustation. Water supplies with a hardness greater than 200 mg/L are considered poor, and would possess a tendency to form scale deposits and result in excessive soap consumption. The Lake Huron water had hardness levels ranging from 99 mg/L to 125 mg/L as CaCO_3 .

The Langelier Index is used extensively in estimating the corrosion

potential of water. An increasingly negative index indicates the increasing possibility of corrosion. It is considered sound engineering practice to maintain a slightly positive Langelier Index. The Langelier Index for the Lake Huron supply is mostly negative.

Metals

The results reported for the Metals scan were below any applicable health related ODWOs.

The aesthetic ODWO (50 ug/L) for manganese was exceeded in the February Treated 1 water (190 ug/L). The corresponding treated (Arva reservoir) water and the Site 1 water had manganese values of .74 and .71 ug/L for the same sampling date thus indicating that the value for the plant treated water was probably an anomaly.

The same conclusion can be made for the February treated plant water iron value of 300 ug/L.

Limited data from Site 2 indicates that the levels of Copper, Lead and Zinc were elevated in most of the standing samples when compared to the free flow distribution samples, indicating that these metals were leached overnight from the household plumbing. Although the Langelier Index indicates minimal potential for corrosion some metals will be leached in standing samples in most supplies. Although the Langelier Index indicates minimal potential

for corrosion some metals will be leached in standing samples in most supplies.

At present, there is no evidence that Aluminum is physiologically harmful and no health limit for drinking water has been specified. The measure of residual Aluminum in the treated water is important to indicate the efficiency of the treatment process. The ODWOs indicate that a useful guideline is to maintain a residual below 100 ug/L as Al in the water leaving the plant to avoid problems in the distribution system. Aluminum values exceeded the ODWO operational guideline six times in the treated water.

Organic Parameters

Chloroaromatics

The results of the Chloroaromatics scan showed that one parameter was detected:

Hexachloroethane

Hexachloroethane was detected at a trace level, once in the distribution system Site 1 water.

Review of these results, along with information from other water supplies on DWSP, would indicate that certain Chloroaromatics appear more frequently in the treated water than in the raw and almost always only at trace levels. These occurrences could

possibly be due to a reaction of chlorine with organics present in the water or in the distribution system.

Chlorophenols

The results of the Chlorophenols scan showed that one Chlorophenol was detected:

Pentachlorophenol

Pentachlorophenol was detected at a trace level, in one of the two raw water samples.

Pesticides and PCB (Polychlorinated Biphenyls)

The results of the Pesticides and PCB scan showed that no PCBs were detected and that two pesticides were detected:

Alpha BHC

Lindane

There are several isomers of BHC (Benzene Hexachloride); gamma BHC is the active ingredient of the pesticide Lindane, while alpha BHC is the isomer predominantly found in surface waters from the Great Lakes Basin as indicated in results from other water supplies on DWSP.

Alpha BHC was detected at trace levels, seven times in the raw water, seven times in the treated plant water, six times in the treated (Arva reservoir) water and six times in the Site 1 water.

Lindane was detected at trace levels, once in the raw water, once in the treated plant water and twice in the treated (Arva reservoir) water.

Specific Pesticides

Results of the Specific Pesticides scan showed that no Specific Pesticides were detected.

Phenolics

The maximum desirable concentration of phenolic substances in drinking water is 2.0 ug/L. This limit has been set primarily to prevent the occurrence of undesirable tastes and odours, particularly in chlorinated water. Phenolics were detected at 2.6, 1.6 and 1.2 ug/L in the raw, treated plant and treated (Arva reservoir) waters respectively in September and at 1.2 ug/L in one other raw water sample. Phenolics were also detected at trace levels, seven times in the raw water, nine times in the treated plant water and ten times in the treated (Arva reservoir) water. Phenolic compounds are present in the aquatic environment as a result of natural and/or industrial processes.

Polynuclear Aromatic Hydrocarbons (PAH)

The results of the PAH scan showed that no PAHs were detected.

Volatiles

The results of the Volatiles scan showed that nine parameters, other than Trihalomethanes (THMs), were detected:

Toluene

Ethylbenzene

Meta-Xylene

Ortho-Xylene

Styrene

Methylene Chloride

1,1,1-Trichloroethane

Carbon Tetrachloride

Tetrachloroethylene

Toluene was detected at trace levels, twice in the raw water, once in the treated plant water and treated (Arva reservoir) water, twice in the Site 1 water and once in the Site 2 water. The detection of toluene at low, trace levels is a laboratory artifact derived from the analytical methodology. The purge-and-trap analytical technique depends on the purging of the volatile organics in the water sample with helium gas onto a Tenax trapping column. The volatile materials are subsequently thermally desorbed, separated and quantified. Tenax, a toluene-like polymeric material, tends to decompose sporadically upon heating into toluene and other aromatic componenets (ethylbenzene and xylene) giving instrument blanks in the order of 0.05 ug/L.

The detected trace levels of Styrene are also considered to be laboratory artifacts due to the outgassing of monomeric styrene from the polystyrene shipping containers. The sporadic background levels from this source are in the order of 0.05 ug/L.

Ethylbenzene was detected at trace levels, twice in the raw water, five times in the treated plant water, three times in the treated (Arva reservoir) water, once in the Site 1 water and in both samples of the Site 2 water.

Meta and Para-Xylene are analysed as one compound and results are reported for Meta-Xylene (M-Xylene). It was detected at trace levels, twice in the treated plant water and once in the Site 1 water.

Ortho-xylene (O-Xylene) was detected at a trace level, in one treated plant water.

The volatiles listed above are typically found on an occasional basis at other water supplies included on the DWSP, usually at trace levels.

Methylene Chloride was detected January at 3.0 ug/L in the raw water, 4.9 in the treated (Arva reservoir) water and 4.0 in the Site 1 water. These results were considered by the laboratory staff as unreliable contamination suspected as per the remark 'UCS'.

1,1,1-Trichloroethane was detected at a trace level, in one raw water sample.

Carbon Tetrachloride was detected at trace levels, once in the treated plant water, treated (Arva reservoir) water and Site 2 water.

Tetrachloroethylene (T-Chloroethylene) was detected at trace levels, once in both the treated (Arva reservoir) and Site 1 water.

THMs are acknowledged to be produced during the water treatment process and will always occur in chlorinated surface waters. THMs are comprised of Chloroform, Chlorodibromomethane and Dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for Total THMs.

Chloroform, Chlorodibromomethane, Dichlorobromomethane and Total THMs were detected in all treated water samples. Bromoform was detected at trace levels in most samples. All Total THM Occurrences ranging from 22.8 ug/L to 48.2 ug/L were well below the ODWO of 350 ug/L.

THMs were detected in the November raw water sample at 22.8 ug/L and not in the corresponding treated water indicating that the raw

and treated samples were reversed.

CONCLUSIONS

The Lake Huron Water Supply System for the sample year of 1988 produced good quality water at the plant and this was maintained in the distribution system.

No health related guidelines for inorganic or organic parameters were exceeded during 1986, 1987 or 1988.

Review of the 1986 and 1987 results indicate that the water quality has remained consistent.

RECOMMENDATIONS

Two recommendations can be made:

1) The application of Hydrofluosilicic acid should be maintained so that the recommended fluoride level is present in the distributed water.

2) Consideration should be given to reducing the sampling frequency at this water supply.

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) SAMPLE DAY CONDITIONS FOR 1988

SAMPLE DAY CONDITIONS				TREATMENT CHEMICAL DOSAGES (MG/L)				
DATE	RETENTION TIME(HRS)	FLOW (1000M3)	PRE-CHLORINATION		POST-CHLORINATION		FLUORIDATION	
			CHLORINE	CHLORINE	COAGULATION	ALUM LIQUID	HYDROFLUOSILICIC ACID	
JAN 18	4.1	145.4	-	1.20	17.70	1.00		
FEB 15	4.1	145.4	.83	.43	13.30	1.00		
MAR 21	3.5	171.9	.61	.72	27.80	1.08		
APR 19	4.1	145.4	.50	.86	31.46		.67	
MAY 16	4.0	149.3	.45	.86	15.70	1.00		
JUN 22	2.8	211.3	-	1.30	20.20	1.00		
JUL 18	2.7	216.5	.50	1.00	14.90	1.00		
AUG 16	2.7	198.8	.50	1.00	19.50	1.00		
SEP 19	3.6	166.4	.48	.94	18.30	1.00		
OCT 19	3.5	170.1	-	1.50	13.60		.94	
NOV 21	4.1	146.8	.38	.95	7.60	1.00		
DEC 13	4.1	146.9	.42	.89	12.60		1.08	

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM LAKE HURON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	RAW		TREATED 1		TREATED 2		SITE 1		SITE 2	
		TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE
BACTERIOLOGICAL	FECAL COLIFORM MF	11	3	0	.	.	.	.	.	.	.
	STANDARD PLATE CNT MF	6	6	0	11	8	0	11	5	0	6
	P/A BOTTLE	.	.	.	8	0	0	8	0	0	5
	TOTAL COLIFORM MF	11	10	0	11	0	0	11	1	0	6
	T COLIFORM BCKGRD MF	11	11	0	11	0	0	11	1	0	6

*TOTAL SCAN BACTERIOLOGICAL		39	30	0	41	8	0	41	7	0	23
*TOTAL GROUP BACTERIOLOGICAL		39	30	0	41	8	0	41	7	0	23

CHEMISTRY (FLD)	FLD CHLORINE (COMB)	.	.	.	9	9	0	11	11	0	6
	FLD CHLORINE FREE	.	.	.	12	12	0	12	12	0	6
	FLD CHLORINE (TOTAL)	.	.	.	12	12	0	12	12	0	6
	FLD PH	12	12	0	12	12	0	12	12	0	7
	FLD TEMPERATURE	12	12	0	12	12	0	12	12	0	7
	FLD TURBIDITY	12	12	0	11	11	0	4	4	0	7

*TOTAL SCAN CHEMISTRY (FLD)		36	36	0	68	68	0	63	63	0	40

CHEMISTRY (LAB)	ALKALINITY	11	11	0	11	11	0	12	12	0	7
	CALCIUM	11	11	0	11	11	0	12	12	0	7
	CYANIDE	12	0	0	12	0	0	12	0	0	7
	CHLORIDE	11	11	0	12	12	0	12	12	0	7
	COLOUR	11	1	10	11	0	8	12	0	6	7

*TOTAL SCAN CHEMISTRY (LAB)		55	55	0	65	65	0	62	62	0	40

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM LAKE HURON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	CHEMISTRY (LAB)	RAW		TREATED 1		TREATED 2		SITE 1		SITE 2						
			TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE					
CHEMISTRY (LAB)	CONDUCTIVITY	11	11	0	11	11	0	12	12	0	7	7	0	4	4	0	
	FLUORIDE	11	11	0	11	11	0	12	12	0	7	7	0	4	4	0	
	HARDNESS	11	11	0	11	11	0	12	12	0	7	7	0	4	4	0	
	IONICAL	11	5	0	12	6	0	12	6	0	7	3	0	4	2	0	
	LANGELIERS INDEX	11	11	0	7	7	0	4	4	0	4	4	0	1	1	0	
	MAGNESIUM	11	11	0	11	11	0	12	12	0	7	7	0	4	4	0	
	SODIUM	11	11	0	11	11	0	12	12	0	7	7	0	4	4	0	
	AMMONIUM TOTAL	11	9	2	11	8	3	12	7	4	7	4	3	4	4	0	
	NITRITE	11	5	6	11	2	8	12	2	6	7	1	3	4	2	2	
	TOTAL NITRATES	11	11	0	11	11	0	12	12	0	7	7	0	4	4	0	
	NITROGEN TOT KJELD	11	11	0	11	8	3	12	9	3	7	6	1	4	4	0	
	PH	11	11	0	11	11	0	12	12	0	7	7	0	4	4	0	
	PHOSPHORUS FIL REACT	11	1	8	11	0	9	11	10	1	1	0	1	-	-	-	
	PHOSPHORUS TOTAL	11	3	8	11	0	5	11	4	7	1	0	1	-	-	-	
	SULPHATE	5	5	0	6	6	0	6	6	0	3	3	0	2	2	0	
	TURBIDITY	11	11	0	11	10	1	12	9	3	7	5	2	4	4	0	
*TOTAL SCAN CHEMISTRY (LAB)			226	172	34	225	158	37	236	177	30	128	96	14	69	59	5
METALS	SILVER	11	0	0	12	0	3	12	0	10	7	0	3	4	0	2	
	ALUMINIUM	11	11	0	12	12	0	12	12	0	7	7	0	4	4	0	
	ARSENIC	11	0	10	12	0	11	12	1	11	7	0	7	4	0	4	
	BARIUM	11	11	0	12	12	0	12	12	0	7	7	0	4	4	0	
	BORON	11	4	7	12	5	7	12	4	8	7	2	5	4	2	2	

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM LAKE HURON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE		RAW		TREATED 1		TREATED 2		SITE 1		SITE 2	
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHLOROPHOMATICS	123 TRICHLOROBENZENE	11	0	0	12	0	0	11	0	0	7	0	0
	1234 T-CHLOROBENZENE	11	0	0	12	0	0	11	0	0	7	0	0
	1235 T-CHLOROBENZENE	11	0	0	12	0	0	11	0	0	7	0	0
	124 TRICHLOROBENZENE	11	0	0	12	0	0	11	0	0	7	0	0
	1245 T-CHLOROBENZENE	11	0	0	12	0	0	11	0	0	7	0	0
	135 TRICHLOROBENZENE	11	0	0	12	0	0	11	0	0	7	0	0
	HCB	11	0	0	12	0	0	11	0	0	7	0	0
	HEXACHLOROETHANE	11	0	0	12	0	0	11	0	0	7	0	0
	OCTACHLOROSTYRENE	11	0	0	12	0	0	11	0	0	7	0	0
	PENTACHLOROBENZENE	11	0	0	12	0	0	11	0	0	7	0	0
	236 TRICHLOROTOLUENE	11	0	0	12	0	0	11	0	0	7	0	0
	245 TRICHLOROTOLUENE	11	0	0	12	0	0	11	0	0	7	0	0
	26A TRICHLOROTOLUENE	11	0	0	12	0	0	11	0	0	7	0	0
*TOTAL SCAN CHLOROPHOMATICS		154	0	0	168	0	0	154	0	0	98	0	0
CHLOROPHENOLS	234 TRICHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	2345 T-CHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	2356 T-CHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	245-TRICHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	246-TRICHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	PENTACHLOROPHENOL	2	0	1	2	0	0	0	0	0	0	0	0
*TOTAL SCAN CHLOROPHENOLS		12	0	1	12	0	0	0	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM LAKE HURON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE			TREATED 1			TREATED 2			SITE 1			SITE 2		
		RAW	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE
PAH	PHENANTHRENE	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	ANTHRACENE	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	FLUORANTHENE	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	PYRENE	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	BENZO(A)ANTHRACENE	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	CHRYSENE	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	DIMETH. BENZ(A)ANTHR	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	BENZO(E) PYRENE	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	BENZO(J) FLUORANTHENE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BENZO(B) FLUORANTHENE	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	PERYLENE	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	BENZO(K) FLUORANTHENE	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	BENZO(A) PYRENE	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	BENZO(G,H,I) PERYLENE	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	DIBENZO(A,H) ANTHRAC	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	INDENO(1,2,3-C,D) PY	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	BENZO(B) CHRYSENE	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
	ANTHANTHRENE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CORONENE	11	0	0	12	0	0	11	0	0	0	0	0	0	0	0
*TOTAL SCAN PAH		187	0	0	204	0	0	187	0	0	0	0	0	0	0	0
PESTICIDES & PCB	ALDRIN	11	0	0	12	0	0	11	0	0	7	0	0	7	0	0
	ALPHA BHC	11	0	7	12	0	7	11	0	6	7	0	6	7	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM LAKE HURON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE			TREATED 1			TREATED 2			SITE 1			SITE 2		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PESTICIDES & PCB	BETA BHC	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	LINDANE	11	0	1	12	0	1	11	0	2	7	0	0	2	0	0
	ALPHA CHLORDANE	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	GAMMA CHLORDANE	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	DIELDRIN	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	METHOXYCHLOR	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	ENDOSULFAN I	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	ENDOSULFAN II	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	ENDRIN	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	ENDOSULFAN SULPHATE	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	HEPTACHLOR EPOXIDE	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	HEPTACHLOR	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	MIREX	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	OXYCHLORDANE	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	OPDGT	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	PCB	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	DDO	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	PPDDE	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	PPDGT	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	AMETRINE	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	ATRAZINE	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	ATRAZONE	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	CYANAZINE	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	DES ETHYL ATRAZINE	5	0	0	6	0	0	5	0	0	3	0	0	1	0	0
	DES ETHYL SIMAZINE	5	0	0	6	0	0	5	0	0	3	0	0	1	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM LAKE HURON

SUMMARY TABLE OF RESULTS (1988)

SITE		RAW				TREATED 1		TREATED 2		SITE 1		SITE 2				
SCAN	PARAMETER	TOTAL	POSITIVE	TRACE		TOTAL	POSITIVE	TRACE		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	

PESTICIDES & PCB	PROMETONE	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	PROPAZINE	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	PROMETRYNE	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	METRIBUJIN	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	SIMAZINE	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	ALACHLOR	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	METOLACHLOR	11	0	0	12	0	0	11	0	0	7	0	0	2	0	0
	*TOTAL SCAN PESTICIDES & PCB	362	0	8	396	0	8	362	0	8	230	0	6	66	0	0

PHENOLICS	PHENOLICS	10	2	7	12	1	9	12	1	10	-	-	-	-	-	-
*TOTAL SCAN PHENOLICS		10	2	7	12	1	9	12	1	10	0	0	0	0	0	0

SPECIFIC PESTICIDES	TOMAPHENE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2,4,5-T	2	0	0	2	0	0	0	0	0	-	-	-	-	-	-
	2,4-D	2	0	0	2	0	0	0	0	0	-	-	-	-	-	-
	2,4-DB	2	0	0	2	0	0	0	0	0	-	-	-	-	-	-
	2,4-D PROPIONIC ACID	2	0	0	2	0	0	0	0	0	-	-	-	-	-	-
	DICAMBA	2	0	0	2	0	0	0	0	0	-	-	-	-	-	-
	PICHLORAM	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-
	SILVEX	2	0	0	2	0	0	0	0	0	-	-	-	-	-	-
DIAZINON	2	0	0	2	0	0	0	1	0	0	-	-	-	-	-	

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM LAKE HUDON

SUMMARY TABLE OF RESULTS (1988)

SITE		TREATED 1				TREATED 2				SITE 1		SITE 2	
SCAN	PARAMETER	RAW		TOTAL		POSITIVE TRACE		TOTAL		POSITIVE TRACE		TOTAL	

SPECIFIC PESTICIDES													
	DICHLOROVOS	2	0	0	2	0	0	0	1	0	0	-	-
	CHLORPYRIFOS	2	0	0	2	0	0	0	1	0	0	-	-
	ETHION	2	0	0	2	0	0	0	1	0	0	-	-
	AZINPHOS-METHYL	0	0	0	0	0	0	0	0	0	0	-	-
	MALATHION	2	0	0	2	0	0	0	1	0	0	-	-
	MEVINPHOS	2	0	0	2	0	0	0	1	0	0	-	-
	METHYL PARATHION	2	0	0	2	0	0	0	1	0	0	-	-
	METHYLTRITHION	2	0	0	2	0	0	0	1	0	0	-	-
	PARATHION	2	0	0	2	0	0	0	1	0	0	-	-
	PHOSPHATE	2	0	0	2	0	0	0	1	0	0	-	-
	RELDAN	2	0	0	2	0	0	0	1	0	0	-	-
	RONNEL	2	0	0	2	0	0	0	1	0	0	-	-
	AMINOCARB	0	0	0	0	0	0	0	0	0	0	-	-
	BENOMYL	2	0	0	2	0	0	0	1	0	0	-	-
	BUX	2	0	0	2	0	0	0	1	0	0	-	-
	CARBOFURAN	2	0	0	2	0	0	0	1	0	0	-	-
	CICP	2	0	0	2	0	0	0	1	0	0	-	-
	DIALLATE	2	0	0	2	0	0	0	1	0	0	-	-
	EPTAM	2	0	0	2	0	0	0	1	0	0	-	-
	IPC	2	0	0	2	0	0	0	1	0	0	-	-
	PROOFOR	2	0	0	2	0	0	0	1	0	0	-	-
	CAMBAPYL	2	0	0	2	0	0	0	1	0	0	-	-
	BUTYLATE	2	0	0	2	0	0	0	1	0	0	-	-
TOTAL SCAN SPECIFIC PESTICIDES		56	0	0	56	0	0	0	22	0	0	0	0

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM LAKE HURON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE																			
		RAW				TREATED 1				TREATED 2				SITE 1				SITE 2			
		TOTAL	POSITIVE	TRACE		TOTAL	POSITIVE	TRACE		TOTAL	POSITIVE	TRACE		TOTAL	POSITIVE	TRACE		TOTAL	POSITIVE	TRACE	
VOLATILES	BENZENE	10	0	0	11	0	0	10	0	0	10	0	0	6	0	0	2	0	0		
	TOLUENE	10	0	2	11	0	1	10	1	0	10	1	0	6	1	1	2	0	1		
	ETHYLBENZENE	10	0	2	11	0	5	10	0	3	6	0	1	2	0	1	2	0	2		
	P-XYLENE	10	0	0	11	0	0	10	0	0	10	0	0	6	0	0	2	0	0		
	M-XYLENE	10	0	0	11	0	2	10	0	0	10	0	0	6	0	1	2	0	0		
	O-XYLENE	10	0	0	11	0	1	10	0	0	10	0	0	6	0	0	2	0	0		
	STYRENE	3	0	1	3	0	0	3	0	0	3	0	0	1	0	0	1	0	0		
	1,1 DICHLOROETHYLENE	10	0	0	11	0	0	9	0	0	9	0	0	6	0	0	2	0	0		
	METHYLENE CHLORIDE	10	1	0	11	0	0	10	1	0	6	1	0	2	0	0	2	0	0		
	T1, 2DICHLOROETHYLENE	10	0	0	11	0	0	10	0	0	6	0	0	2	0	0	2	0	0		
	1,1 DICHLOROETHANE	10	0	0	11	0	0	10	0	0	6	0	0	2	0	0	2	0	0		
	CHLOROFORM	10	1	1	11	10	0	10	10	0	6	6	0	2	2	0	2	0	0		
	111, TRICHLOROETHANE	10	0	1	11	0	0	10	0	0	6	0	0	2	0	0	2	0	0		
	1,2 DICHLOROETHANE	10	0	0	11	0	0	10	0	0	6	0	0	2	0	0	2	0	0		
	CARBON TETRACHLORIDE	10	0	0	11	0	1	10	0	1	6	0	0	2	0	1	2	0	1		
	1,2 DICHLOROPROPANE	10	0	0	11	0	0	10	0	0	6	0	0	2	0	0	2	0	0		
TRICHLOROETHYLENE	10	0	0	11	0	0	10	0	0	6	0	0	2	0	0	2	0	0			
DICHLOROBROMOMETHANE	10	1	1	11	10	0	10	10	0	6	6	0	2	2	0	2	0	0			
112 TRICHLOROETHANE	10	0	0	11	0	0	10	0	0	6	0	0	2	0	0	2	0	0			
CHLOROIBROMOMETHANE	10	1	1	11	10	0	10	10	0	6	6	0	2	2	0	2	0	0			
T-CHLOROETHYLENE	10	0	0	11	0	0	10	0	1	5	0	1	2	0	0	2	0	0			
BROMOFORM	10	0	1	11	0	9	10	0	10	6	0	4	2	0	2	0	2	0			
1122 T-CHLOROETHANE	10	0	0	11	0	0	10	0	0	6	0	0	2	0	0	2	0	0			
CHLOROBENZENE	10	0	0	11	0	0	10	0	0	6	0	0	2	0	0	2	0	0			
1,4 DICHLOROBENZENE	10	0	0	11	0	0	10	0	0	6	0	0	2	0	0	2	0	0			

DRINKING WATER SURVEILLANCE PROGRAM LAKE HURON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE				TREATED 1				TREATED 2				SITE 1				SITE 2			
		RAW																			
		TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE	TOTAL	POSITIVE TRACE				
	VOLATILES	10	0	0	11	0	0	10	0	0	0	6	0	0	2	0	0				
	1,3 DICHLOROBENZENE	10	0	0	11	0	0	10	0	0	0	6	0	0	2	0	0				
	1,2 DICHLOROBENZENE	5	0	0	5	0	0	5	0	0	3	0	0	0	.	.	.				
	TRIFLUOROCHLOROTOLUE	10	0	0	11	0	0	10	0	0	6	0	0	2	0	0	0				
	ETHYLENE DIBROMIDE	10	0	0	11	0	0	10	0	10	0	6	0	6	0	2	0				
	TOTL TRIHALOMETHANES	10	2	0	11	10	0	10	0	10	0	6	0	6	0	2	0				
	*TOTAL SCAN VOLATILES	288	6	10	316	40	19	287	42	15	171	26	8	57	8	6	6				
	*TOTAL GROUP ORGANIC	1069	8	26	1164	41	36	1024	43	33	499	26	15	151	8	6	6				

KEY TO TABLE 5 and 6

- A ONTARIO DRINKING WATER OBJECTIVES (ODWO)
1. Maximum Acceptable Concentration (MAC)
 - 1+. MAC for Total Trihalomethanes
 - 1*. MAC for Bacteriological Analyses
 - Poor water quality is indicated when :
 - total coliform counts > 0 < 5
 - P/A Bottle Test is present after 48 hours
 - Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
 - Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
 - Standard Plate Count should not exceed 500 organisms per ml at 35 °C within 48 hours
 2. Interim Maximum Acceptable Concentration (IMAC)
 3. Maximum Desirable Concentration (MDC)
 4. Aesthetic or Recommended Operational Guideline
 - hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness >200 mg/L are considered poor and those in excess of 500 mg/L are unacceptable.
- B HEALTH & WELFARE CANADA (H&W)
1. Maximum Acceptable Concentration (MAC)
 2. Proposed MAC
 3. Interim MAC
 4. Aesthetic Objective (AO) (for xylenes, the AO is a total)
- C WORLD HEALTH ORGANIZATION (WHO)
1. Guideline Value (GV)
 2. Tentative GV
 3. Aesthetic GV
- D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
 2. Suggested No-Adverse Effect Level (SNAEL)
 3. Lifetime Health Advisory
 4. EPA Ambient Water Quality Criteria
- F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
 2. Aesthetic Guideline Level
 3. Maximum Admissible Concentration (MADC)
- G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE
- H USSR MAXIMUM PERMISSIBLE CONCENTRATION
- I NEW YORK STATE AMBIENT WATER GUIDELINE
- N/A NONE AVAILABLE

INTERPRETATION OF DATA

The interpretation of analytical results that are obtained from measurements near the limit of detection of the measurement process is subject to greater uncertainty than those at higher concentrations. The principle areas of concern relate to whether the substance has actually been detected, whether it has been properly identified, and whether it is an artifact of the measurement process. In other words, false positives can be caused by the instrumentation or the test procedures used, when in fact these compounds are not present in the sample.

There are several methods to treat data from such measurements:

1. Exclude the low-level data because of this uncertainty factor. However, studies of long-term environmental trends and modelling may be adversely affected by exclusion of such data.
2. Qualify these data so the user is aware of the greater uncertainty associated with their use.

For the Drinking Water Surveillance Program, measurements near the limit of detection of the measurement process are reported qualified by the code "<T". Results quantified by "W" indicate a zero measurement. These results are reported for purposes of modelling and long-term trend analysis and no significance should be attributed to a single determination of a substance below "T" (a single determination may well be a false positive). Repeat analysis or additional data are needed before it can be stated with certainty that the substance in question was truly present. On the other hand, it is less likely that repeated detection of a substance at or near the limit of detection at a specific location is solely due to an artifact in the measurement system, and more likely represents a true positive. However the average of such data is still only an estimate of the amount of substance present subject to the possible biases of the method used.

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident (SEE INTERPRETATION OF RESULTS ABOVE)
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!AW	No Data: Analysis Withdrawn
!CR	No Data: Could Not Confirm By Reanalysis
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IS	No Data: Insufficient Sample
!LA	No Data: Laboratory Accident

!LD	No Data: Test Queued After Sample Discarded
!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!QU	No Data: Quality Control Unacceptable
!PE	No Data: Procedural Error - Sample Discarded
!PH	No Data: Sample pH Outside Valid Range
!RE	No Data: Received Empty
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
!TX	No Data: Time Expired
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only
PPS	Test Performed On Preserved Sample
RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UAL	Unreliable: Sample Age Exceeds Normal Limit
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours
T# (T06)	Result Taken After # Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

WATER TREATMENT PLANT

DISTRIBUTION SYSTEM

RAW	SITE 1		SITE 2	
	TREATED 1	TREATED 2	STANDING	STANDING
BACTERIOLOGICAL				
FECAL COLIFORM MF (CT/100ML)				
GUIDELINE = 0 (A1)				
JAN	0			
FEB	0			
MAR	0			
APR	0			
MAY	0			
JUN	0			
JUL	0			
SEP	12			
OCT	2 T48			
NOV	6 T48			
DEC	0 T48			
STANDARD PLATE CNT MF (CT/ML)				
GUIDELINE = 500/ML (A1)				
JAN	28	2		
FEB	300	470		
MAR	56	4		
APR	180	0		
MAY	850	6		
JUN	29	7		
JUL	11A	11A		
AUG		6		
SEP		0		
OCT		82 T48		
NOV		2		
DEC		41 T48		

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

DISTRIBUTION SYSTEM

WATER TREATMENT PLANT

SITE TYPE	RAW	TREATED 1		TREATED 2		SITE 1		SITE 2	
		FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING
P/A BOTTLE ()		DET'N LIMIT = 0		GUIDELINE = 0 (A1*)					
JAN	-	0	0	0	-	0	0	-	-
FEB	-	0	0	0	-	0	0	-	-
MAR	-	0	0	0	-	0	0	-	-
APR	-	0	0	0	-	-	-	-	-
MAY	-	0	0	0	-	0	0	-	-
JUN	-	0	0	0	-	-	-	-	-
JUL	-	0	0	0	-	0	0	-	-
AUG	-	0	0	0	-	-	-	-	-
TOTAL COLIFORM MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = 5/100ML(A1)					
JAN	2	0	0	0	-	0	0	-	-
FEB	63 A3C	0	0	0	-	0	0	-	-
MAR	2	0	0	0	-	0	0	-	-
APR	20	0	0	0	-	-	-	-	-
MAY	4	0	0	0	-	0	0	-	-
JUN	4	0	0	0	-	-	-	-	-
JUL	2 A3C	1LA	1LA	1LA	-	1LA	1LA	-	-
AUG	-	0	0	0	-	-	-	-	-
SEP	360 A3C	0	0	2 T48	-	0	0	-	-
OCT	28 A3C	0 T48	0 T24	0 T24	-	-	-	-	0 T24
NOV	2500 A3C	0 T48	0 T24	0 T24	-	0 T48	0 T48	-	-
DEC	BDL	0 T48	0 T24	0 T24	-	-	-	-	-
T COLIFORM BCKGRD MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = N/A					
JAN	53	0	0	0	-	-	0	-	-

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM		
	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	STANDING	FREE FLOW
		FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	FREE FLOW
FEB	440	0	0	.	.	.	.
MAR	34	0	0	.	.	.	.
APR	520	0	0	.	.	.	.
MAY	124	0	2	.	.	.	.
JUN	34	0	0	.	.	.	.
JUL	40000 >	11A	11A	.	.	.	.
AUG	.	0	0	.	.	.	.
SEP	21600 A3C	0	0 148	.	.	.	.
OCT	4800 >	0 148	0 124	.	.	.	.
NOV	24000 A3C	0 148	0 124	.	.	0 124	0 124
DEC	2400 148	0 148	0 124	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	STANDING	FREE FLOW
CHEMISTRY (FLD)							
FLD CHLORINE (COMB) ()	DET'M LIMIT = N/A			GUIDELINE = N/A			
JAN	-	-	.100	-	.200	-	-
FEB	-	.070	.200	-	-	-	-
MAR	-	.200	.100	-	.200	-	-
APR	-	.100	.300	-	-	-	-
MAY	-	.200	.300	-	.100	-	-
JUN	-	.100	-	-	-	-	-
JUL	-	.200	.200	-	.100	-	-
AUG	-	.200	.100	-	-	-	-
SEP	-	-	.200	-	.100	-	-
OCT	-	.100	.300	-	-	.100	.200
NOV	-	-	.100	-	.100	-	-
DEC	-	.100	.200	-	-	-	-
FLD CHLORINE FREE ()							
DET'M LIMIT = N/A				GUIDELINE = N/A			
JAN	1.400	1.000	-	-	.900	-	-
FEB	.850	.900	-	-	.900	-	-
MAR	1.100	.900	-	-	.900	-	-
APR	.900	.600	-	-	-	-	-
MAY	.800	.700	-	-	.700	-	-
JUN	.800	1.100	-	-	-	.300	.700
JUL	1.400	.900	-	-	1.000	-	-
AUG	1.100	.900	-	-	-	-	-
SEP	.950	.900	-	-	-	-	-
OCT	1.400	.700	-	-	-	.300	.500
NOV	.900	.900	-	-	.800	-	-

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON USS) 1988

SITE TYPE	WATER TREATMENT PLANT			DISTRIBUTION SYSTEM		
	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	
			FREE FLOW	STANDING	FREE FLOW	STANDING
						FREE FLOW
DEC	-	.900	.900	-	-	-
FLD CHLORINE (TOTAL) ()						
			DET'N LIMIT = N/A		GUIDELINE = N/A	
JAN	-	1.400	1.100	-	1.100	-
FEB	-	.920	1.100	-	.900	-
MAR	-	1.300	1.000	-	1.100	-
APR	-	1.000	.900	-	-	-
MAY	-	1.000	1.000	-	.800	-
JUN	-	.900	1.100	-	-	.700
JUL	-	1.600	1.100	-	1.100	.300
AUG	-	1.300	1.000	-	-	-
SEP	-	.950	1.100	-	1.000	-
OCT	-	1.500	1.000	-	-	.400
NOV	-	.900	1.000	-	.900	.700
DEC	-	1.000	1.100	-	-	-
FLD PH (DIMENSIONLESS)						
			DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)	
JAN	7.500	7.400	7.200	-	7.400	-
FEB	7.500	7.180	7.300	-	7.400	-
MAR	7.400	7.300	7.050	-	7.200	-
APR	7.900	6.980	7.300	-	-	-
MAY	7.700	7.500	7.300	-	7.300	-
JUN	7.800	7.500	7.200	-	-	7.500
JUL	7.800	7.500	7.400	-	7.500	7.400
AUG	7.800	7.500	7.400	-	-	-
SEP	7.700	7.500	7.400	-	7.500	-

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	RAW	WATER TREATMENT PLANT			DISTRIBUTION SYSTEM		
		TREATED 1	TREATED 2	SITE 1	SITE 2		
			FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
OCT	7.700	7.500	7.500	-	-	7.400	7.400
NOV	7.700	7.500	7.200	-	7.500	-	-
DEC	7.500	7.500	7.500	-	-	-	-
FLO TEMPERATURE (DEG.C) DET'N LIMIT = N/A GUIDELINE = 15 (A1)							
JAN	4.000	4.500	2.000	-	6.000	-	-
FEB	2.000	3.000	1.000	-	8.000	-	-
MAR	3.000	3.500	3.000	-	4.500	-	-
APR	7.000	9.000	8.000	-	-	-	-
MAY	11.000	12.000	11.000	-	12.000	-	-
JUN	16.000	16.000	16.000	-	-	-	16.000
JUL	17.000	18.000	18.000	-	18.000	-	-
AUG	25.000	25.000	24.000	-	-	-	-
SEP	19.000	19.000	19.000	-	20.000	-	-
OCT	14.000	14.000	13.000	-	-	18.000	17.000
NOV	9.000	10.000	9.000	-	10.500	-	-
DEC	4.900	5.000	3.800	-	-	-	-
FLO TURBIDITY (FTU) DET'N LIMIT = N/A GUIDELINE = 1.0 (A1)							
JAN	3.000	.090	-	-	.090	-	-
FEB	2.300	.140	-	-	.080	-	-
MAR	3.300	.270	.080	-	.270	-	-
APR	33.000	.080	1.000	-	-	-	-
MAY	2.900	.160	.100	-	.160	-	-
JUN	1.000	.290	-	-	-	-	-
JUL	2.000	.230	-	-	.230	-	-

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT			DISTRIBUTION SYSTEM		
	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	
			FREE FLOW	STANDING	FREE FLOW	STANDING
AUG	3.100	.090	.	.	.	.
SEP	2.700	.160	.	.	.160	.
OCT	2.900	.150	.	.	.	.
NOV	10.600	.	.	.	.190	.
DEC	3.800	.120	.990	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

		WATER TREATMENT PLANT			DISTRIBUTION SYSTEM		
SITE		TREATED 1	TREATED 2	SITE 1	SITE 2		
TYPE			FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
		DET'N LIMIT = .200			GUIDELINE = 30-500 (A4)		
CHEMISTRY (LAB)							
ALKALINITY (MG/L)							
JAN	82.200	75.100	72.100	INR	75.000	.	.
FEB	88.600	11S	78.600	.	81.400	.	.
MAR	85.200	75.400	72.400	.	75.500	.	.
APR	99.700	86.000	90.500	.	.	.	.
MAY	90.500	83.600	83.400	.	82.200	.	.
JUN	89.300	81.200	77.400	.	.	86.400	96.400
JUL	86.800	79.800	78.200	.	79.800	.	.
AUG	.	78.900	77.800	.	.	.	.
SEP	86.300	80.800	78.700	.	79.900	.	.
OCT	85.500	78.300	76.100	.	.	79.300	78.900
NOV	83.800	80.000	80.500	.	80.200	.	.
DEC	84.600	79.500	76.600	.	.	.	.
CALCIUM (MG/L)		DET'N LIMIT = .100			GUIDELINE = 100 (F2)		
JAN	29.400	29.400	28.400	INR	29.400	.	.
FEB	31.200	11S	30.600	.	30.800	.	.
MAR	28.000	27.800	28.200	.	28.600	.	.
APR	32.200	33.600	35.600	.	.	.	.
MAY	30.800	31.800	32.000	.	31.000	.	.
JUN	27.600	28.200	29.600	.	.	32.200	36.000
JUL	30.400	30.000	30.400	.	30.400	.	.
AUG	.	29.400	29.200	.	.	.	.
SEP	30.600	30.400	30.200	.	30.000	.	.
OCT	28.000	28.600	28.600	.	.	29.800	29.400
NOV	28.000	29.400	33.000	.	27.800	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	STANDING	FREE FLOW
		FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	FREE FLOW
DEC	29.200	29.600	30.000	-	-	-	-
CYANIDE (MG/L)							
				DET'N LIMIT = 0.001			
				GUIDELINE = .200 (A1)			
JAN	BDL	BDL	BDL	-	BDL	-	-
FEB	BDL	BDL	BDL	-	.003 <T	-	-
MAR	BDL	BDL	BDL	-	BDL	-	-
APR	BDL	BDL	BDL	-	-	-	-
MAY	BDL	BDL	BDL	-	BDL	-	-
JUN	BDL	BDL	BDL	-	-	-	-
JUL	BDL	BDL	BDL	-	BDL	-	BDL
AUG	BDL	BDL	BDL	-	-	-	-
SEP	BDL	BDL	BDL	-	BDL	-	-
OCT	BDL	BDL	BDL	-	BDL	-	-
NOV	BDL	BDL	BDL	-	-	-	BDL
DEC	BDL	BDL	BDL	-	BDL	-	-
CHLORIDE (MG/L)							
				DET'N LIMIT = .200			
				GUIDELINE = 250 (A3)			
JAN	6.000	6.900	6.700	INR	6.900	-	-
FEB	6.500	7.200	7.300	-	7.400	-	-
MAR	6.200	6.700	7.000	-	6.900	-	-
APR	6.700	7.600	8.500	-	-	-	-
MAY	7.300	8.300	8.600	-	8.600	-	-
JUN	5.800	6.700	7.100	-	-	-	10.800
JUL	5.900	7.300	7.400	-	7.400	9.100	-
AUG	-	7.300	7.500	-	-	-	-
SEP	5.800	6.800	7.200	-	7.200	-	-

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM		
	RAW	TREATED 1	TREATED 2	SITE 1 STANDING	FREE FLOW	STANDING	FREE FLOW
JUN	99.000	101.000	105.000	-	-	114.000	126.000
JUL	108.000	107.000	107.000	-	107.000	-	-
AUG	-	105.000	103.000	-	-	-	-
SEP	110.000	109.000	109.000	-	108.000	-	-
OCT	100.000	101.000	101.000	-	-	104.000	104.000
NOV	101.000	103.000	116.000	-	101.000	-	-
DEC	106.200	106.800	107.800	-	-	-	-
IONCAL (OHMSLESS)							
	DET'N LIMIT = N/A			GUIDELINE = N/A			
JAN	.000 NAF	.000 NAF	.000 NAF	-	.000 NAF	-	-
FEB	.000 NAF	.000 NAF	.000 NAF	-	.000 NAF	-	-
MAR	.000 NAF	.000 NAF	.000 NAF	-	.000 NAF	-	-
APR	.000 NAF	.000 NAF	.000 NAF	-	-	-	-
MAY	.000 NAF	.000 NAF	.000 NAF	-	.000 NAF	-	-
JUN	.000 NAF	.000 NAF	.000 NAF	-	-	.000 NAF	.000 NAF
JUL	1.898	.141	2.129	-	.792	-	-
AUG	-	.183	.833	-	-	-	-
SEP	4.094	2.571	3.421	-	2.247	-	-
OCT	5.192	5.261	.818	-	-	2.148	1.622
NOV	.117	.140	5.468	-	3.492	-	-
DEC	.384	.538	2.283	-	-	-	-
LANGELIERS INDEX (OHMSLESS)							
	DET'N LIMIT = N/A			GUIDELINE = N/A			
JAN	.177 NAF	.045 NAF	.127 NAF	-	.095 NAF	-	-
FEB	.128 NAF	-	-.142 NAF	-	-.034 NAF	-	-
MAR	.192 NAF	.127 NAF	.249 NAF	-	.095 NAF	-	-

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

DISTRIBUTION SYSTEM

WATER TREATMENT PLANT

SITE
TYPE

RAW

TREATED 1

TREATED 2

SITE 1

SITE 2

FREE FLOW

FREE FLOW

STANDING

FREE FLOW

STANDING

FREE FLOW

STANDING

FREE FLOW

APR

.415 MAF

.337 MAF

.348 MAF

-

-

-

-

MAY

.265 MAF

.123 MAF

.074 MAF

-

.025 MAF

-

-

JUN

.361 MAF

.117 MAF

-.094 MAF

-

-

-.049 MAF

.156 MAF

JUL

.293

-.101

-.205

-

-.126

-

-

AUG

-

-.053

-.063

-

-

-

-

SEP

.233

.041

-.114

-

-.040

-

-

OCT

.293

.032

-.130

-

-

-.029

-.045

NOV

.095

-.006

-.020

-

.011

-

-

DEC

.197

-.015

-.076

-

-

-

-

MAGNESIUM (MG/L)

DET'M LIMIT = .050

GUIDELINE = 30 (F2)

JAN

7.500

7.600

7.700

IHR

7.600

-

-

FEB

8.200

11S

7.800

-

7.800

-

-

MAR

7.400

7.500

7.500

-

7.600

-

-

APR

8.300

8.400

8.700

-

-

-

-

MAY

7.600

7.700

8.000

-

7.900

-

-

JUN

7.400

7.500

7.600

-

-

8.300

8.900

JUL

7.800

7.700

7.600

-

7.700

-

-

AUG

-

7.600

7.400

-

-

-

-

SEP

8.100

8.000

8.000

-

8.100

-

-

OCT

7.400

7.200

7.200

-

-

7.300

7.400

NOV

7.600

7.200

8.100

-

7.600

-

-

DEC

8.100

8.000

8.000

-

-

-

-

SCOLIUM (MG/L)

DET'M LIMIT = .200

GUIDELINE = 200 (C3)

JAN

3.600

3.600

3.600

IHR

3.600

-

-

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	STANDING	FREE FLOW	FREE FLOW
FEB	3,800	11S	3,600	-	-	-	3,600	-
MAR	3,400	3,400	3,400	-	-	-	3,400	-
APR	4,000	3,800	4,200	-	-	-	-	-
MAY	4,400	4,600	4,200	-	-	-	4,400	-
JUN	3,400	3,400	3,400	-	-	4,400	-	5,600
JUL	3,600	3,600	3,600	-	-	-	3,600	-
AUG	-	3,600	3,600	-	-	-	-	-
SEP	3,600	3,400	3,400	-	-	-	3,400	-
OCT	3,400	3,400	3,600	-	-	3,800	-	3,800
NOV	3,800	3,800	3,400	-	-	-	2,600	-
DEC	3,200	3,400	3,400	-	-	-	-	-
AMMONIUM TOTAL (MG/L)								
				DET'N LIMIT = 0.002		GUIDELINE = .05 (F2)		
JAN	.014	.002 <T	80L	-	-	-	.002 <T	-
FEB	.008 <T	11S	.002 <T	-	-	-	.004 <T	-
MAR	.018	.016	.008 <T	-	-	-	.004 <T	-
APR	.026	.010	.008 <T	-	-	-	-	-
MAY	.030	.014	.018	-	-	-	.016	-
JUN	.018	.010	.010	-	-	.014	-	.016
JUL	.028	.008 <T	.010	-	-	-	.010	-
AUG	-	.004 <T	.002 <T	-	-	-	-	-
SEP	.028	.016	.012	-	-	-	.014	-
OCT	.004 <T	.006	.002	-	-	.006	-	.006
NOV	.010	.014	.012	-	-	-	.010	-
DEC	.010	.012	.012	-	-	-	-	-
NITRITE (MG/L)								
				DET'N LIMIT = 0.001		GUIDELINE = 1.000 (A1)		

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM		
	RAW	TREATED 1	TREATED 2	STANDING	FREE FLOW	STANDING	FREE FLOW
JAN	.001 <T	BDL	BDL	.	BDL	.	.
FEB	.002 <T	11S	BDL	.	BDL	.	.
MAR	.006	.004 <T	BDL	.	BDL	.	.
APR	.012	.002 <T	.001 <T	.	.	.	.
MAY	.009	.005	.016	.	.011	.	.
JUN	.004 <T	.001 <T	.001 <T	.	.	.001 <T	.001 <T
JUL	.004 <T	.001 <T	BDL	.	.001 <T	.	.
AUG	.	.001 <T	.001 <T	.	.	.	.
SEP	.007	.004 <T	.004 <T	.	.003 <T	.	.
OCT	.008	.001	.001	.	.	.002	.001
NOV	.003 <T	.002 <T	.001 <T	.	.	.	.
DEC	.004 <T	.004 <T	.003 <T	.	.	.	.
TOTAL NITRATES (MG/L)				GUIDELINE = 10.000 (A1)			
				DET'N LIMIT = .020			
JAN	.300	.300	.305	.	.310	.	.
FEB	.450	11S	.430	.	.430	.	.
MAR	.345	.360	.370	.	.435	.	.
APR	.970	.985	1.080	.	.	.	.
MAY	.600	.575	.615	.	.565	.	.
JUN	.315	.320	.315	.	.	.330	.355
JUL	.245	.265	.245	.	.270	.	.
AUG	.	.225	.225	.	.	.	.
SEP	.310	.240	.245	.	.245	.	.
OCT	.260	.285	.285	.	.	.265	.275
NOV	.350	.425	.870	.	.340	.	.
DEC	.320	.320	.335	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT			DISTRIBUTION SYSTEM		
	RAW	TREATED 1	TREATED 2	SITE 1 STANDING	FREE FLOW	STANDING
NITROGEN TOT KJEL (MG/L)						
			DET'N LIMIT = .020		GUIDELINE = N/A	
JAN	.120	.070 <T	.080 <T	INR	.070 <T	-
FEB	.210	11S	.130	-	.110	-
MAR	.150	.080 <T	.070 <T	-	.140	-
APR	.320	.140	.140	-	-	-
MAY	.240	.140	.120	-	.150	-
JUN	.180	.130	.220	-	-	.110
JUL	.180	.120	.120	-	.120	-
AUG	-	.220	.130	-	-	-
SEP	.210	.130	.150	-	.130	-
OCT	.130	.080 <T	.090 <T	-	-	.100
NOV	.190	.130	.130	-	.100	-
DEC	.160	.100	.110	-	-	-
PH (CONNSLESS)						
			DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)	
JAN	8.200	8.020	7.970	INR	7.970	-
FEB	8.100	11S	7.890	-	7.980	-
MAR	8.220	7.960	7.850	-	7.980	-
APR	8.330	8.300	8.270	-	-	-
MAY	8.240	8.120	8.070	-	8.040	-
JUN	8.380	8.170	7.960	-	-	8.050
JUL	8.280	7.930	7.830	-	7.900	-
AUG	-	7.990	7.990	-	-	-
SEP	8.220	8.060	7.920	-	7.990	-
OCT	8.320	8.090	7.940	-	-	8.000
NOV	8.130	8.030	7.970	-	8.070	-
DEC	8.210	8.020	7.970	-	-	-

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2		
		FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	FREE FLOW
PHOSPHORUS FIL REACT (MG/L)				GUIDELINE = N/A			
				DET'N LIMIT = .0005			
JAN	.001 <T	.000 <T	.	.	.000 <T	.	.
FEB	.002 <T	11S	.002	.	.	.	.
MAR	.001 <T	.001 <T	.005	.	.	.	.
APR	.003	.001 <T	.003	.	.	.	.
MAY	.000 <T	.000 <T	.004	.	.	.	.
JUN	.001 <T	.000 <T	.016	.	.	.	.
JUL	.000	.000	.003	.	.	.	.
AUG	.	.000 <T	.002 <T	.	.	.	.
SEP	.002 <T	.001 <T	.007	.	.	.	.
OCT	BOL	.000	.005	.	.	.	.
NOV	.002 <T	.001 <T	.012	.	.	.	.
DEC	.000 <T	.000 <T	.005	.	.	.	.
PHOSPHORUS TOTAL (MG/L)				GUIDELINE = .40 (F2)			
				DET'N LIMIT = .002			
JAN	.006 <T	BOL	.	.	.002 <T	.	.
FEB	.008 <T	11S	.004 <T	.	.	.	.
MAR	.003 <T	BOL	.005 <T	.	.	.	.
APR	.045	BOL	.004 <T	.	.	.	.
MAY	.006 <T	BOL	.004 <T	.	.	.	.
JUN	.003 <T	BOL	.040	.	.	.	.
JUL	.006 <T	.006 <T	.012	.	.	.	.
AUG	.	.005 <T	.002 <T	.	.	.	.
SEP	.011	.006 <T	.010	.	.	.	.
OCT	.004 <T	.002 <T	.006 <T	.	.	.	.
NOV	.026	.003 <T	.018	.	.	.	.
DEC	.008 <T	BOL	.008 <T	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED 1	TREATED 2	SITE 1		SITE 2	
		FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING
SULPHATE ()		DET'N LIMIT = .200		GUIDELINE = 500. (A3)			
JUL	17.000	22.300	22.200	-	22.400	-	-
AUG	-	21.800	22.000	-	-	-	-
SEP	16.700	21.200	21.300	-	21.300	-	-
OCT	17.800	23.800	21.710	-	-	23.060	22.540
NOV	15.310	19.420	21.670	-	17.750	-	-
DEC	18.500	23.500	24.000	-	-	-	-
TURBIDITY (FTU)		DET'N LIMIT = .02		GUIDELINE = 1.00 (A1)			
JAN	2.600	.090 <T	.100 <T	-	.070 <T	-	-
FEB	1.060	ITS	.080	-	.100	-	-
MAR	.760	.140	.060	-	.200	-	-
APR	32.000	.120	.050 <T	-	-	-	-
MAY	.940	.140	.090 <T	-	.070 <T	-	-
JUN	1.210	.150	2.100	-	-	.200	.120
JUL	.810	.180	.190	-	.180	-	-
AUG	-	.360	.490	-	-	-	-
SEP	2.200	1.250	.540	-	.300	-	-
OCT	1.610	.490	.800	-	-	.940	.510
NOV	11.400	.320	.830	-	.390	-	-
DEC	2.100	.310	.340	-	-	-	-

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM			
SITE TYPE	TREATED 1	TREATED 2	SITE 1	SITE 2	STANDING	FREE FLOW
METALS						
SILVER (UG/L)	DET'N LIMIT = .020		GUIDELINE = 50. (A1)			
JAN	BOL	.100 <T	-	BOL	-	-
FEB	BOL	.020 <T	-	.030 <T	-	-
MAR	BOL	.040 <T	-	.060 <T	-	-
APR	BOL	BOL	-	-	-	-
MAY	BOL	BOL	-	BOL	-	-
JUN	BOL	.150 <T	-	-	.040 <T	BOL
JUL	BOL	.040 <T	-	.040 <T	-	-
AUG	-	.040 <T	-	-	-	-
SEP	BOL	.030 <T	-	BOL	-	-
OCT	BOL	.150 <T	-	.040 <T	-	BOL
NOV	BOL	.030 <T	-	BOL	-	-
DEC	BOL	.030 <T	-	-	-	-
ALUMINUM (UG/L)						
DET'N LIMIT = .050		GUIDELINE = 100. (A4)				
JAN	31.320	38.280	-	33.640	-	-
FEB	61.480	162.400	-	39.440	-	-
MAR	18.560	40.600	-	78.880	-	-
APR	220.400	33.640	-	-	-	-
MAY	27.840	111.360	-	49.880	-	-
JUN	13.920	150.800	-	-	99.760	78.880
JUL	24.360	185.600	-	150.800	-	-
AUG	-	278.400	-	-	-	-
SEP	24.360	197.200	-	139.200	-	-
OCT	31.320	83.520	-	-	29.000	69.600
NOV	112.520	87.000	-	-	98.600	-

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2		
			FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
DEC	23,200	53,360	40,600	-	-	-	-
ARSENIC (UG/L)				GUIDELINE = 50.0 (A1)			
JAN	.560 <T	.150 <T	.520 <T	-	.230 <T	-	-
FEB	.450 <T	.140 <T	.510 <T	-	.080 <T	-	-
MAR	.310 <T	.150 <T	.490 <T	-	.080 <T	-	-
APR	.550 <T	.190 <T	.320 <T	-	-	-	-
MAY	.360 <T	.310 <T	.790 <T	-	.200 <T	-	-
JUN	BOL	BOL	1,600	-	-	.330 <T	.170 <T
JUL	.380 <T	.200 <T	.480 <T	-	.240 <T	-	-
AUG	-	.420 <T	.830 <T	-	-	-	-
SEP	.820 <T	.580 <T	.790 <T	-	.420 <T	-	-
OCT	.580 <T	.500 <T	.750 <T	-	-	.260 <T	.510 <T
NOV	.760 <T	.580 <T	.860 <T	-	.430 <T	-	-
DEC	.730 <T	.330 <T	.540 <T	-	-	-	-
BARIUM (UG/L)				GUIDELINE = 1000. (A1)			
JAN	13,000	12,000	12,000	-	12,000	-	-
FEB	15,000	18,000	14,000	-	14,000	-	-
MAR	14,000	13,000	13,000	-	13,000	-	-
APR	17,000	14,000	11,000	-	-	-	-
MAY	16,000	14,000	16,000	-	15,000	-	-
JUN	16,000	15,000	16,000	-	-	22,000	22,000
JUL	15,000	14,000	14,000	-	14,000	-	-
AUG	-	13,000	15,000	-	-	-	-
SEP	14,000	14,000	14,000	-	14,000	-	-

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HUWOM WSS) 1988

WATER TREATMENT PLANT					DISTRIBUTION SYSTEM				
SITE TYPE	RAW	TREATED 1		TREATED 2		SITE 1		SITE 2	
		FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING
BORON (UG/L)									
DET'N LIMIT = 0.200									
OCT	15,000	14,000	14,000	14,000	-	-	14,000	14,000	14,000
NOV	16,000	15,000	16,000	16,000	-	-	14,000	-	-
DEC	15,000	14,000	14,000	14,000	-	-	-	-	-
GUIDELINE = 5000. (A1)									
BORON (UG/L)									
DET'N LIMIT = 0.200									
JAN	14,000 <T	13,000 <T	13,000 <T	13,000 <T	-	-	13,000 <T	-	-
FEB	14,000 <T	13,000 <T	14,000 <T	14,000 <T	-	-	13,000 <T	-	-
MAR	13,000 <T	14,000 <T	13,000 <T	13,000 <T	-	-	13,000 <T	-	-
APR	14,000 <T	12,000 <T	8,300 <T	8,300 <T	-	-	-	-	-
MAY	9,800 <T	9,500 <T	11,000 <T	11,000 <T	-	-	12,000 <T	-	-
JUN	19,000 <T	15,000 <T	18,000 <T	18,000 <T	-	-	-	-	-
JUL	15,000 <T	15,000 <T	13,000 <T	13,000 <T	-	-	14,000 <T	-	-
AUG	-	30,000	30,000	30,000	-	-	-	-	-
SEP	48,000	41,000	44,000	44,000	-	-	37,000	-	-
OCT	25,000	23,000	24,000	24,000	-	-	-	-	-
NOV	43,000	46,000	38,000	38,000	-	-	50,000	-	-
DEC	47,000	48,000	18,000 <T	18,000 <T	-	-	-	-	-
GUIDELINE = 20,000 <T									
BERYLLIUM (UG/L)									
DET'N LIMIT = 0.010									
JAN	.010 <T	.010 <T	.010 <T	.010 <T	-	-	BOL	-	-
FEB	.040 <T	BOL	.020 <T	.020 <T	-	-	.010 <T	-	-
MAR	.010 <T	BOL	.010 <T	.010 <T	-	-	.010 <T	-	-
APR	.040 <T	.090 <T	BOL	BOL	-	-	-	-	-
MAY	BOL	.030 <T	BOL	BOL	-	-	BOL	-	-
JUN	BOL	BOL	BOL	BOL	-	-	-	-	-
JUL	BOL	.040 <T	BOL	BOL	-	-	-	-	-
GUIDELINE = BDL									

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON USS) 1988

SITE TYPE	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM				
	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	FREE FLOW		STANDING	
						FREE FLOW	STANDING	FREE FLOW	STANDING
AUG	.	BDL	.020 <T	.	.	.	.	.	.
SEP	.070 <T	.090 <T	.070 <T	.	.	.070 <T	.	.	.
OCT	BDL	BDL	.090 <T	.	.	.	BDL	.	BDL
NOV	.120 <T	.100 <T	BDL	.	.	.050 <T	.	.	.
DEC	.120 <T	.110 <T	.080 <T	.	.	.	.	.	.
CADMIUM (UG/L)) DET'N LIMIT = 0.050 GUIDELINE = 5.000 (A1)									
JAN	BDL	BDL	BDL	.	.	BDL	.	.	.
FEB	.050 <T	BDL	BDL	.	.	BDL	.	.	.
MAR	BDL	BDL	BDL	.	.	BDL	.	.	.
APR	BDL	BDL	BDL	.	.	.	.	.	.
MAY	BDL	BDL	BDL	.	.	BDL	.	.	.
JUN	BDL	BDL	BDL	.	.	.	.	.090 <T	BDL
JUL	BDL	BDL	BDL	.	.	BDL	.	.	.
AUG	.	BDL	BDL	.	.	.	.	.	.
SEP	BDL	BDL	BDL	.	.	BDL	.	.	.
OCT	BDL	BDL	BDL	.	.	.	.	BDL	BDL
NOV	BDL	BDL	BDL	.	.	BDL	.	.	.
DEC	BDL	BDL	BDL	.	.	.	.	.	.
COBALT (UG/L)) DET'N LIMIT = 0.020 GUIDELINE = 1000 (H)									
JAN	.270 <T	.230 <T	.260 <T	.	.	.240 <T	.	.	.
FEB	.070 <T	.130 <T	.070 <T	.	.	.050 <T	.	.	.
MAR	.100 <T	.060 <T	.110 <T	.	.	.120 <T	.	.	.
APR	.370 <T	.090 <T	.070 <T	.	.	.	.	.	.
MAY	.070 <T	.080 <T	.110 <T	.	.	.090 <T	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT			DISTRIBUTION SYSTEM		
	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	
			FREE FLOW	STANDING	FREE FLOW	STANDING
						FREE FLOW
CHROMIUM (UG/L)						
			DET'N LIMIT = 0.100		GUIDELINE = 50. (A1)	
JUN	.040 <T	.030 <T	.100 <T	.	.	BOL
JUL	.120 <T	.130 <T	.110 <T	.	.110 <T	.
AUG	.	.060 <T	.060 <T	.	.	.
SEP	.120 <T	.160 <T	.140 <T	.	.100 <T	.
OCT	.110 <T	.140 <T	.140 <T	.	.	.130 <T
NOV	.230 <T	.080 <T	.140 <T	.	.070 <T	.
DEC	.110 <T	.090 <T	.080 <T	.	.	.
COPPER (UG/L)						
			DET'N LIMIT = .100		GUIDELINE = 1000 (A3)	
JAN	1,300	1,300	.850 <T	.	2,400	.
FEB	1,400	8,600	.930 <T	.	2,300	.
MAR	1,100	2,300	.550 <T	.	2,800	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
	RAW	TREATED 1	TREATED 2	SITE 1 STANDING	SITE 2 STANDING	FREE FLOW	FREE FLOW	
APR	2,000	3,700	.870 <T	.	.	.	.	
MAY	3,600	1,700	1,100	.	.	3,100	.	
JUN	1,300	3,200	2,600	.	270,000	.	86,000	
JUL	1,500	9,100	1,100	.	.	2,600	.	
AUG	.	6,000	.950 <T	.	.	.	.	
SEP	1,500	3,800	.990 <T	.	.	2,900	.	
OCT	1,600	3,200	1,100	.	900,000	.	31,000	
NOV	2,300	2,300	1,200	.	.	2,000	.	
DEC	1,200	2,100	.650 <T	.	.	.	.	
IRON (UG/L)								
				DET'N LIMIT = 4,000				
				GUIDELINE = 300. (A3)				
JAN	39,000 <T	8,300 <T	BOL	.	.	4,900 <T	.	
FEB	41,000	300,000	12,000 <T	.	.	10,000 <T	.	
MAR	28,000 <T	11,000 <T	5,500 <T	.	.	7,800 <T	.	
APR	400,000	6,700 <T	11,000 <T	.	.	.	.	
MAY	34,000 <T	9,500 <T	5,300 <T	.	.	BOL	.	
JUN	20,000 <T	10,000 <T	43,000 <T	.	18,000 <T	.	15,000 <T	
JUL	20,000 <T	7,500 <T	BOL	.	.	BOL	.	
AUG	.	8,600 <T	BOL	.	.	.	.	
SEP	34,000 <T	14,000 <T	BOL	.	.	BOL	.	
OCT	27,000 <T	BOL	BOL	.	11,000 <T	.	16,000 <T	
NOV	240,000	BOL	26,000 <T	.	.	BOL	.	
DEC	49,000 <T	BOL	BOL	.	.	.	.	
MERCURY (UG/L)								
				DET'N LIMIT = 0.010				
				GUIDELINE = 1,000 (A1)				
JAN	.030	.030	BOL	.	.	.010	.	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM		
	RAW	TREATED 1	TREATED 2	STANDING	SITE 1 STANDING	FREE FLOW	STANDING
MANGANESE (UG/L)							
				DET'N LIMIT = .050			
				GUIDELINE = 50.0 (A3)			
FEB	.020	.030	.010	-	-	.010	-
MAR	.040	.040	BDL	-	-	BDL	-
APR	.070	.060	.010	-	-	-	-
MAY	BDL	BDL	BDL	-	-	BDL	-
JUN	.020 <T	.020 <T	BDL	-	-	-	.020 <T
JUL	BDL	BDL	BDL	-	-	BDL	-
AUG	.020 <T	BDL	BDL	-	-	-	-
SEP	.030 <T	.020 <T	BDL	-	-	.030 <T	-
OCT	.030 <T	.020 <T	BDL	-	-	-	-
NOV	.030 <T	.050 <T	BDL	-	-	.020 <T	.020 <T
DEC	.040 <T	.050 <T	.020 <T	-	-	-	-
MOLYBDENUM (UG/L)							
				DET'N LIMIT = 0.020			
				GUIDELINE = 500 (H)			
JAN	1,900	1,200	1,100	-	-	.870	-
FEB	1,700	190,000	.740	-	-	.710	-
MAR	1,400	1,800	.480 <T	-	-	.430 <T	-
APR	24,000	4,100	.880	-	-	-	-
MAY	2,000	.940	.440 <T	-	-	.440 <T	-
JUN	1,600	1,700	4,000	-	-	-	2,200
JUL	1,700	.670	.260 <T	-	-	.230 <T	-
AUG	-	.500 <T	.220 <T	-	-	-	-
SEP	1,800	.960	.300 <T	-	-	.270 <T	-
OCT	1,000	.870	.380 <T	-	-	-	1,200
NOV	19,000	.820	1,300	-	-	.360 <T	1,400
DEC	3,100	.570	.270 <T	-	-	-	-

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HUROM USS) 1988

SITE TYPE		WATER TREATMENT PLANT			DISTRIBUTION SYSTEM		
		RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	
			FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
JAN		.460 <T	.470 <T	.470 <T	.	.510	.
FEB		.510	.570	.500	.	.490 <T	.
MAR		.480 <T	.470 <T	.560	.	.520	.
APR		.280 <T	.450 <T	.360 <T	.	.	.
MAY		.440 <T	.550	.520	.	.520	.
JUN		.550	.540	.550	.	.	.660
JUL		.520	.470 <T	.490 <T	.	.510	.
AUG		.	.490 <T	.510	.	.	.
SEP		.440 <T	.480 <T	.440 <T	.	.520	.
OCT		.470 <T	.460 <T	.410 <T	.	.420 <T	.480 <T
NOV		.290 <T	.470 <T	.520	.	.550	.
DEC		.530	.520	.430 <T	.	.	.
NICKEL (UG/L)		DET'N LIMIT = 0.100			GUIDELINE = 50. (F3)		
JAN	3.000	3.000	2.600	.	2.800	.	.
FEB	.250 <T	7.700	.250 <T	.	.210 <T	.	.
MAR	.340 <T	1.800	.590 <T	.	.410 <T	.	.
APR	1.200 <T	3.800	.800 <T	.	.	.	.
MAY	BDL	.660 <T	.680 <T	.	.810 <T	.	.
JUN	BDL	.980 <T	BDL	.	BDL	BDL	BDL
JUL	BDL	.990 <T	BDL	.	BDL	.	.
AUG	.	1.300 <T	BDL	.	.	.	.
SEP	.430 <T	1.700 <T	.230 <T	.	.440 <T	.	.
OCT	BDL	4.100	.920 <T	.	1.100 <T	1.100 <T	1.100 <T
NOV	.390 <T	1.800 <T	BDL	.	BDL	.	.
DEC	.910 <T	1.600 <T	.590 <T	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE		WATER TREATMENT PLANT				DISTRIBUTION SYSTEM		
		RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	STANDING	FREE FLOW
LEAD (UG/L)		DET'M LIMIT = 0.050						
		GUIDELINE = 50. (A1)						
JAN	.370	.060 <T	.190 <T	.280	.	.	.	.
FEB	.340	.4.800	.080 <T	.230	.	.	.	.
MAR	.240	.130 <T	.040 <T	.320	.	.	.	.
APR	.790	.090 <T	.030 <T	.	.	.	.	.
MAY	.370	.040 <T	.030 <T	.350	.	.	.	.
JUN	.150 <T	.090 <T	.080 <T	.	16.000	.	.	1.700
JUL	.370	.320	BOL	.510	.	.	.	.
AUG	.	.330	.060 <T	.	.	.	.	.
SEP	.210	.190 <T	.100 <T	.440	.	.	.	.
OCT	.220	.080 <T	.040 <T	.	32.000	.	.	1.800
NOV	.780	.030 <T	.050 <T	.290	.	.	.	.
DEC	.340	.030 <T	BOL	.	.	.	.	.
ANTIMONY (UG/L)		DET'M LIMIT = .050						
		GUIDELINE = 146. (04)						
JAN	.150 <T	.120 <T	.170 <T	.	.150 <T	.	.	.
FEB	.170 <T	.620	.150 <T	.	.150 <T	.	.	.
MAR	.140 <T	.140 <T	.120 <T	.	.150 <T	.	.	.
APR	.090 <T	.150 <T	.100 <T	.	.	.	.	.
MAY	.140 <T	.140 <T	.120 <T	.	.140 <T	.	.	.
JUN	.110 <T	.110 <T	.190 <T	.	.090 <T	.	.100 <T	.
JUL	.170 <T	.120 <T	.110 <T	.	.150 <T	.	.	.
AUG	.	.470	.530	.	.	.	.	.
SEP	.520	.510	.480	.	.430	.	.	.
OCT	.490	.520	.530	.	.	.650	.	.530
NOV	.360	.440	.590	.	.450	.	.	.
DEC	.260	.270	.280	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON USS) 1988

SITE TYPE		WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
		TREATED 1	TREATED 2	SITE 1		SITE 2			
		FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING		
SELENIUM (UG/L)		DET'N LIMIT = 0.200						GUIDELINE = 10. (A1)	
JAN	.400 <T	BOL	.380 <T	-	.490 <T	-	-	-	
FEB	.620 <T	.620 <T	.820 <T	-	.950 <T	-	-	-	
MAR	BOL	.320 <T	.940 <T	-	.640 <T	-	-	-	
APR	1,200 <T	1,400 <T	.840 <T	-	-	-	-	-	
MAY	BOL	BOL	1,600 <T	-	2,000 <T	-	-	-	
JUN	BOL	BOL	4,500 <T	-	-	BOL	BOL	BOL	
JUL	.730 <T	.300 <T	BOL	-	BOL	-	-	-	
AUG	-	BOL	1,000 <T	-	-	-	-	-	
SEP	BOL	.580 <T	1,300 <T	-	1,400 <T	-	-	-	
OCT	BOL	2,000 <T	2,600 <T	-	-	2,200 <T	-	3,400 <T	
NOV	2,300 <T	3,400 <T	3,100 <T	-	4,900 <T	-	-	-	
DEC	1,600 <T	2,300 <T	1,600 <T	-	-	-	-	-	
STRONTIUM (UG/L)		DET'N LIMIT = .050						GUIDELINE = 2000. (H)	
JAN	95,000	93,000	96,000	-	94,000	-	-	-	
FEB	140,000	110,000	120,000	-	120,000	-	-	-	
MAR	100,000	100,000	110,000	-	110,000	-	-	-	
APR	140,000	140,000	140,000	-	-	-	-	-	
MAY	180,000	180,000	180,000	-	180,000	-	-	-	
JUN	120,000	120,000	130,000	-	-	210,000	-	210,000	
JUL	110,000	110,000	110,000	-	120,000	-	-	-	
AUG	-	120,000	120,000	-	-	-	-	-	
SEP	120,000	120,000	120,000	-	110,000	-	-	-	
OCT	99,000	100,000	100,000	-	-	100,000	-	100,000	
NOV	100,000	100,000	100,000	-	100,000	-	-	-	
DEC	100,000	99,000	97,000	-	-	-	-	-	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

WATER TREATMENT PLANT DISTRIBUTION SYSTEM

SITE TYPE	RAW	SITE 1			SITE 2		
		TREATED 1	TREATED 2	STANDING	FREE FLOW	STANDING	FREE FLOW
TITANIUM (UG/L)							
		DET'N LIMIT = .050		GUIDELINE = N/A			
JAN	4,100	3,000	3,800	-	3,200	-	-
FEB	6,000	3,800	5,400	-	4,800	-	-
MAR	4,200	3,900	5,200	-	4,200	-	-
APR	7,900	3,300	3,400	-	-	-	-
MAY	4,200	3,300	3,600	-	3,200	-	-
JUN	4,700	3,800	7,000	-	-	-	5,400
JUL	4,100	1,900 <T	2,700	-	2,200	-	-
AUG	-	3,200	4,300	-	-	-	-
SEP	5,900	5,000	6,000	-	5,100	-	-
OCT	4,800	3,000	2,900	-	-	3,100	3,200
NOV	7,600	4,100	6,900	-	4,400	-	-
DEC	4,300	3,500	3,600	-	-	-	-
THALLIUM (UG/L)							
		DET'N LIMIT = .010		GUIDELINE = 13, (04)			
JAN	.010 <T	BOL	.020 <T	-	.010 <T	-	-
FEB	.030 <T	.130 <T	.010 <T	-	.020 <T	-	-
MAR	.010 <T	BOL	.010 <T	-	.010 <T	-	-
APR	BOL	BOL	BOL	-	-	-	-
MAY	BOL	BOL	BOL	-	BOL	-	-
JUN	BOL	.030 <T	.020 <T	-	-	BOL	BOL
JUL	BOL	BOL	BOL	-	BOL	-	-
AUG	-	BOL	BOL	-	-	-	-
SEP	BOL	BOL	BOL	-	BOL	-	-
OCT	BOL	BOL	BOL	-	-	BOL	-
NOV	BOL	BOL	BOL	-	-	BOL	BOL
DEC	BOL	BOL	BOL	-	-	-	-

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT			DISTRIBUTION SYSTEM			
	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2		
			FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
URANIUM (UG/L)		DET'N LIMIT = .020					GUIDELINE = 20. (A2)
JAN	.210	.110 <T	.180 <T	.	.120 <T	.	.
FEB	.250	.170 <T	.170 <T	.	.150 <T	.	.
MAR	.210	.070 <T	.080 <T	.	.100 <T	.	.
APR	.340	.080 <T	.110 <T	.	.	.	.
MAY	.270	.210	.130 <T	.	.130 <T	.	.
JUN	.230	.080 <T	.140 <T	.	.	.160 <T	.160 <T
JUL	.210	.130 <T	.130 <T	.	.120 <T	.	.
AUG	.	.120 <T	.120 <T	.	.	.	.
SEP	.220	.190 <T	.120 <T	.	.130 <T	.	.
OCT	.170 <T	.080 <T	.160 <T	.	.100 <T	.040 <T	.100 <T
NOV	.250	.220	.230	.	.170 <T	.	.
DEC	.220	.150 <T	.180 <T	.	.	.	.
VANADIUM (UG/L)		DET'N LIMIT = .050					GUIDELINE = 100 (H)
JAN	.270 <T	.340 <T	.340 <T	.	.340 <T	.	.
FEB	.240 <T	.140 <T	.350 <T	.	.340 <T	.	.
MAR	.200 <T	.450	.540	.	.530	.	.
APR	.820	.600	.540	.	.	.	.
MAY	.210 <T	.510	.590	.	.610	.	.
JUN	.230 <T	.510	.710	.	.	.550	.490 <T
JUL	.260 <T	.620	.570	.	.560	.	.
AUG	.	.300 <T	.370 <T	.	.	.	.
SEP	.320 <T	.270 <T	.280 <T	.	.310 <T	.	.
OCT	.300 <T	.670	.740	.	.	.350 <T	.580
NOV	.600	.440 <T	.540	.	.440 <T	.	.
DEC	.270 <T	.480 <T	.530	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT			DISTRIBUTION SYSTEM		
	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	
		FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
ZINC (UG/L)		DET'N LIMIT = .001				
		GUIDELINE = 5000. (A3)				
JAN	7.900	4.300	1.400	-	2.800	-
FEB	4.500	21.000	1.500	-	1.800	-
MAR	3.800	8.600	1.200	-	2.500	-
APR	4.100	10.000	1.300	-	-	-
MAY	5.000	7.500	2.700	-	3.400	-
JUN	1.500	8.900	2.200	-	-	4.600
JUL	3.700	12.000	1.100	-	2.000	-
AUG	-	13.000	.940 <T	-	-	-
SEP	1.800	10.000	2.000	-	2.300	-
OCT	2.500	8.500	1.100	-	-	2.700
NOV	6.000	7.000	1.700	-	1.500	-
DEC	3.300	4.500	.860 <T	-	-	-

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM		
	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2		
		FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	
CHLOROPHENOLS							
HEXACHLOROETHANE (NG/L)		DET'N LIMIT = 1,000		GUIDELINE = 1900 (D4)			
JAN	BDL	BDL	BDL	*	BDL	*	*
FEB	BDL	BDL	BDL	*	BDL	*	*
MAR	BDL	BDL	BDL	*	BDL	*	*
APR	BDL	BDL	BDL	*	*	*	*
MAY	BDL	BDL	BDL	*	BDL	*	*
JUN	BDL	BDL	BDL	*	*	*	BDL
JUL	BDL	BDL	*	*	2,000 <T	*	*
AUG	*	BDL	BDL	*	*	*	*
SEP	BDL	BDL	BDL	*	BDL	*	*
OCT	BDL	BDL	BDL	*	*	*	BDL
NOV	BDL	BDL	BDL	*	BDL	*	*
DEC	BDL	BDL	BDL	*	*	*	*

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT			DISTRIBUTION SYSTEM		
	TREATED 1	TREATED 2	SITE 1	SITE 2	STANDING	FREE FLOW
	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	FREE FLOW
CHLOROPHENOLS						
PENTACHLOROPHENOL (NG/L)	DET'M LIMIT = 50.			GUIDELINE = 60000 (B1)		
JUN	BDL	ILA	.	.	.	.
NOV	BDL	INR	.	.	.	.
	50,000 <T					

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE		WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
		TREATED 1	TREATED 2	STANDING	STANDING	FREE FLOW	STANDING	FREE FLOW	FREE FLOW
PESTICIDES & PCB									
ALPHA BHC (NG/L)		DET'N LIMIT = 1,000				GUIDELINE = 700 (G)			
JAN	3,000 <T	3,000 <T	BDL	.	.	2,000 <T	.	.	.
FEB	BDL	BDL	BDL	.	.	BDL	.	.	.
MAR	3,000 <T	3,000 <T	2,000 <T	.	.	2,000 <T	.	.	.
APR	2,000 <T	3,000 <T	1,000 <T	.	.	.	.	.	.
MAY	BDL	2,000 <T	BDL	.	.	2,000 <T	.	.	.
JUN	BDL	BDL	BDL	.	.	.	.	.	BDL
JUL	2,000 <T	3,000 <T	.	.	.	2,000 <T	.	.	.
AUG	.	BDL	2,000 <T	.	.	.	.	.	.
SEP	1,000 <T	2,000 <T	2,000 <T	.	.	1,000 <T	.	.	.
OCT	2,000 <T	3,000 <T	BDL	.	.	.	.	.	BDL
NOV	BDL	BDL	2,000 <T	.	.	2,000 <T	.	.	.
DEC	2,000 <T	BDL	2,000 <T	.	.	.	.	.	.
LINDANE (NG/L)		DET'N LIMIT = 1,000				GUIDELINE = 4000 (A1)			
JAN	2,000 <T	BDL	BDL	.	.	BDL	.	.	.
FEB	BDL	BDL	BDL	.	.	BDL	.	.	.
MAR	BDL	BDL	BDL	.	.	BDL	.	.	.
APR	BDL	BDL	BDL	.	.	.	.	.	.
MAY	BDL	BDL	BDL	.	.	BDL	.	.	.
JUN	BDL	BDL	BDL	.	.	.	.	.	BDL
JUL	BDL	BDL	.	.	.	BDL	.	.	.
AUG	.	BDL	1,000 <T	.	.	.	.	.	.
SEP	BDL	BDL	1,000 <T	.	.	BDL	.	.	.
OCT	BDL	1,000 <T	BDL	.	.	.	.	.	BDL
NOV	BDL	BDL	BDL	.	.	BDL	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT			DISTRIBUTION SYSTEM		
	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	
			FREE FLOW	STANDING	FREE FLOW	STANDING
DEC	BOL	BOL	BOL	.	.	.

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED 1		TREATED 2		SITE 1		SITE 2	
		FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING
PHENOLICS									
PHENOLICS (UG/L)									
DET'N LIMIT = 0.2									
GUIDELINE = 2.00 (A3)									
JAN	.600 <T	.600 <T	.800 <T	.	.	.	.	.	.
FEB	.600 <T	.600 <T	.600 <T	.	.	.	.	.	.
MAR	.200 <T	.200 <T	.200 <T	.	.	.	.	.	.
APR	BDL	BDL	BDL	.	.	.	.	.	.
MAY	.800 <T	.200 <T	.600 <T	.	.	.	.	.	.
JUN	1.200	1.000 <T	.600 <T	.	.	.	.	.	.
JUL	.400 <T	.400 <T	.400 <T	.	.	.	.	.	.
AUG	.	.600 <T	.200 <T	.	.	.	.	.	.
SEP	2.600	1.600	1.200	.	.	.	.	.	.
OCT	.600 <T	.200 <T	.600 <T	.	.	.	.	.	.
NOV	.400 <T	.400 <T	.600 <T	.	.	.	.	.	.
DEC	115	BDL	.600 <T	.	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON USS) 1988

SITE TYPE		WATER TREATMENT PLANT			DISTRIBUTION SYSTEM		
		RAW	TREATED 1	TREATED 2	SITE 1 STANDING	SITE 2 STANDING	FREE FLOW
VOLATILES		DET'N LIMIT = .050					
TOLUENE (UG/L)		GUIDELINE = 24.0 (84)					
JAN	BDL	BDL	BDL	.100 UCS	-	.100 UCS	-
MAR	BDL	BDL	BDL	.000 APS	-	BDL	-
APR	BDL	BDL	BDL	BDL	-	-	-
MAY	BDL	BDL	BDL	BDL	-	BDL	-
JUN	.050 <T	.050 <T	.050 <T	BDL	-	-	.100 <T
JUL	.050 <T	BDL	BDL	-	-	.050 <T	-
AUG	-	BDL	BDL	BDL	-	-	-
SEP	BDL	BDL	BDL	BDL	-	BDL	-
OCT	BDL	BDL	BDL	BDL	-	-	BDL
NOV	BDL	BDL	BDL	BDL	-	BDL	-
DEC	BDL	BDL	BDL	BDL	-	-	-
ETHYLBENZENE (UG/L)		DET'N LIMIT = .050					
		GUIDELINE = 2.4 (84)					
JAN	BDL	BDL	BDL	BDL	-	BDL	-
MAR	BDL	BDL	BDL	BDL	-	BDL	-
APR	BDL	BDL	BDL	BDL	-	-	-
MAY	BDL	.100 <T	.100 <T	.100 <T	-	BDL	-
JUN	.100 <T	.100 <T	.100 <T	.050 <T	-	-	.100 <T
JUL	.050 <T	.100 <T	.100 <T	-	-	.050 <T	-
AUG	-	.150 <T	BDL	BDL	-	-	-
SEP	BDL	BDL	BDL	BDL	-	BDL	-
OCT	BDL	.050 <T	.050 <T	.050 <T	-	-	.100 <T
NOV	BDL	BDL	BDL	BDL	-	BDL	-
DEC	BDL	BDL	BDL	BDL	-	-	-

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED 1	TREATED 2	SITE 1		SITE 2	
		FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING
M-XYLENE (UG/L)							
DET'N LIMIT = .100							
GUIDELINE = 300 (84)							
JAN	BOL	BOL	BOL	*	BOL	*	*
MAR	BOL	BOL	BOL	*	BOL	*	*
APR	BOL	BOL	BOL	*	*	*	*
MAY	BOL	BOL	BOL	*	BOL	*	*
JUN	BOL	BOL	BOL	*	*	*	BOL
JUL	BOL	.200 <T	*	*	.100 <T	*	*
AUG	*	.100 <T	BOL	*	BOL	*	*
SEP	BOL	BOL	BOL	*	BOL	*	*
OCT	BOL	BOL	BOL	*	*	*	BOL
NOV	BOL	BOL	BOL	*	BOL	*	*
DEC	BOL	BOL	BOL	*	*	*	*
O-XYLENE (UG/L)							
DET'N LIMIT = .050							
GUIDELINE = 300 (84)							
JAN	BOL	BOL	BOL	*	BOL	*	*
MAR	BOL	BOL	BOL	*	BOL	*	*
APR	BOL	BOL	BOL	*	*	*	*
MAY	BOL	BOL	BOL	*	BOL	*	*
JUN	BOL	BOL	BOL	*	*	*	BOL
JUL	BOL	.100 <T	*	*	BOL	*	*
AUG	*	BOL	BOL	*	*	*	*
SEP	BOL	BOL	BOL	*	BOL	*	*
OCT	BOL	BOL	BOL	*	*	*	BOL
NOV	BOL	BOL	BOL	*	BOL	*	*
DEC	BOL	BOL	BOL	*	*	*	*
STYRENE (UG/L)							
DET'N LIMIT = .050							
GUIDELINE = 46.5 (D2)							

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT			DISTRIBUTION SYSTEM		
	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	
			FREE FLOW	STANDING	FREE FLOW	STANDING
OCT	.100 <T	BOL	BOL	-	-	-
NOV	BOL	BOL	BOL	-	BOL	-
DEC	BOL	BOL	BOL	-	-	-
METHYLENE CHLORIDE (UG/L)						
			DET'N LIMIT = .500		GUIDELINE = 1750 (03)	
JAN	3,000 UCS	BOL	4,900 UCS	-	4,000 UCS	-
FEB	BOL	BOL	BOL	-	BOL	-
MAR	BOL	BOL	BOL	-	-	-
APR	BOL	BOL	BOL	-	-	-
MAY	BOL	BOL	BOL	-	BOL	-
JUN	BOL	BOL	BOL	-	-	-
JUL	BOL	BOL	-	-	BOL	-
AUG	-	BOL	BOL	-	-	-
SEP	BOL	BOL	BOL	-	BOL	-
OCT	BOL	BOL	BOL	-	-	-
NOV	BOL	BOL	BOL	-	BOL	-
DEC	BOL	BOL	BOL	-	-	-
CHLOROPYRIM (UG/L)						
			DET'N LIMIT = .100		GUIDELINE = 350 (AT+)	
JAN	BOL	18,600	7,300	-	9,200	-
FEB	.300 <T	15,100	15,800	-	22,700	-
MAR	BOL	14,200	27,200	-	-	-
APR	BOL	19,000	17,900	-	24,500	-
MAY	BOL	14,500	15,700	-	-	-
JUN	BOL	30,300	-	-	29,000	24,400
JUL	-	23,900	25,500	-	-	-
AUG	BOL	15,600	29,000	-	24,700	-
SEP						

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1983

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED 1	TREATED 2	SITE 1 STANDING	FREE FLOW	SITE 2 STANDING	FREE FLOW
OCT	BDL	22.600	18.900	.	.	.	16.600
NOV	12.800	BDL	18.000	.	21.400	.	.
DEC	BDL	15.900	10.000	.	.	.	.

111, TRICHLOROETHANE (UG/L)				GUIDELINE = 200 (D1)			
DET'N LIMIT = .020							
JAN	BDL	BDL	BDL	.	BDL	.	.
MAR	BDL	BDL	BDL	.	BDL	.	.
APR	BDL	BDL	BDL	.	.	.	.
MAY	.100 <T	BDL	BDL	.	BDL	.	.
JUN	BDL	BDL	BDL	.	.	.	BDL
JUL	BDL	BDL	.	.	BDL	.	.
AUG	.	BDL	BDL	.	.	.	.
SEP	BDL	BDL	BDL	.	BDL	.	.
OCT	BDL	BDL	BDL	.	.	.	BDL
NOV	BDL	BDL	BDL	.	BDL	.	.
DEC	BDL	BDL	BDL	.	.	.	.

CARBON TETRACHLORIDE (UG/L)				GUIDELINE = 5.0 (D1)			
DET'N LIMIT = .200							
JAN	BDL	BDL	BDL	.	BDL	.	.
MAR	BDL	BDL	BDL	.	BDL	.	.
APR	BDL	BDL	BDL	.	.	.	.
MAY	BDL	BDL	BDL	.	BDL	.	.
JUN	BDL	BDL	BDL	.	.	.	.200 <T
JUL	BDL	BDL	.	.	BDL	.	.
AUG	.	BDL	BDL	.	.	.	.
SEP	BDL	BDL	BDL	.	BDL	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON USS) 1988

SITE TYPE	WATER TREATMENT PLANT			DISTRIBUTION SYSTEM		
	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	
			FREE FLOW	STANDING	FREE FLOW	STANDING
						FREE FLOW
OCT	BDL	BDL	BDL	.	.	BDL
NOV	BDL	BDL	BDL	.	BDL	.
DEC	BDL	.400 <T	.600 <T	.	.	.
DICHLOROBROMOMETHANE (UG/L)						
			DET'N LIMIT = .050		GUIDELINE = 350 (A1*)	
JAN	BDL	9.850	4.800	.	6.400	.
MAR	.300 <T	9.300	8.800 APS	.	10.400	.
APR	BDL	8.600	9.300	.	.	.
MAY	BDL	11.000	8.200	.	10.550	.
JUN	BDL	9.550	9.300	.	.	12.300
JUL	BDL	12.000	.	.	11.100	.
AUG	.	12.350	12.350	.	.	.
SEP	BDL	10.650	13.250	.	13.050	.
OCT	BDL	10.600	9.100	.	.	9.400
NOV	6.450	BDL	7.900	.	9.700	.
DEC	BDL	9.200	6.950	.	.	.
CHLORO BROMOMETHANE (UG/L)						
			DET'N LIMIT = .100		GUIDELINE = 350 (A1*)	
JAN	BDL	6.500	3.000	.	3.700	.
MAR	.300 <T	4.800	6.200	.	5.200	.
APR	BDL	3.600	2.400	.	.	.
MAY	BDL	3.900	4.400	.	3.300	.
JUN	BDL	4.700	4.100	.	.	7.600
JUL	BDL	2.700	.	.	3.900	.
AUG	.	8.300	7.700	.	.	.
SEP	BDL	5.700	5.800	.	5.500	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2			
			FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	
OCT	BDL	4,600	4,300	*	*	*	4,900	
NOV	3,200	BDL	3,000	*	4,000	*	*	
DEC	BDL	4,200	3,000	*	*	*	*	
T-CHLOROETHYLENE (UG/L)								
			DET'N LIMIT = .050		GUIDELINE = 10.0 (C2)			
JAN	BDL	BDL	BDL	*	BDL	*	*	
MAR	BDL	BDL	BDL	*	BDL	*	*	
APR	BDL	BDL	BDL	*	*	*	*	
MAY	BDL	BDL	BDL	*	*	*	*	
JUN	BDL	BDL	BDL	*	*	*	BDL	
JUL	BDL	BDL	*	*	BDL	*	*	
AUG	*	BDL	BDL	*	*	*	*	
SEP	BDL	BDL	BDL	*	BDL	*	*	
OCT	BDL	BDL	BDL	*	*	*	BDL	
NOV	BDL	BDL	.100 <T	*	.050 <T	*	*	
DEC	BDL	BDL	BDL	*	*	*	*	
BROMOFORM (UG/L)								
			DET'N LIMIT = .200		GUIDELINE = 350 (A1+)			
JAN	BDL	.400 <T	.400 <T	*	.400 <T	*	*	
MAR	BDL	.400 <T	.400 <T	*	.200 <T	*	*	
APR	BDL	.200 <T	.200 <T	*	*	*	*	
MAY	BDL	BDL	.200 <T	*	BDL	*	*	
JUN	BDL	.400 <T	.400 <T	*	*	*	.600 <T	
JUL	BDL	.200 <T	*	*	.200 <T	*	*	
AUG	*	.800 <T	.800 <T	*	*	*	*	
SEP	BDL	.400 <T	.200 <T	*	BDL	*	*	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM LONDON (LAKE HURON WSS) 1988

SITE TYPE	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM				
	RAW	TREATED 1	TREATED 2	SITE 1	SITE 2	STANDING	FREE FLOW	STANDING	FREE FLOW
		FREE FLOW	STANDING						
OCT	BDL	.600 <T	.400 <T	.	.	.	.400 <T	.	.400 <T
NOV	.400 <T	BDL	.200 <T	.	.	.400 <T	.	.	.
DEC	BDL	.600 <T	.400 <T	.	.	.	.	.	.
TOTAL TRIMALOMETHANES (UG/L)									
		DET'N LIMIT = .500				GUIDELINE = 350 (A1)			
JAN	BDL	35.350	15.500	.	.	19.700	.	.	.
MAR	.900	29.600	31.200	.	.	38.500	.	.	.
APR	BDL	26.600	39.100	.	.	.	.	.	.
MAY	BDL	33.900	30.700	.	.	38.550	.	.	.
JUN	BDL	29.150	29.500	.	.	.	.	.	45.100
JUL	BDL	45.200	.	.	.	44.200	.	.	.
AUG	.	45.350	46.350	.	.	.	.	.	.
SEP	BDL	32.350	48.200	.	.	43.250	.	.	.
OCT	BDL	38.400	32.700	.	.	.	.	.	31.300
NOV	22.850	BDL	29.100	.	.	35.500	.	.	.
DEC	BDL	30.300	20.950	.	.	.	.	.	.

Table 6

<u>SCAN/PARAMETER</u>	<u>UNIT</u>	<u>LIMIT</u>	<u>GUIDELINE</u>
BACTERIOLOGICAL			
STANDARD PLATE COUNT MEMBRANE FILTRATION	CT/ML	0	500/ML (A1)
P/A BOTTLE		0	0 (A1*)
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100mL (A1)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
CHLOROAROMATICS			
HEXACHLOROBUTADIENE	NG/L	1.000	450. (D4)
1,2,3-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,4-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.000	38000 (D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.000	10000 (D4)
HEXACHLOROBENZENE	NG/L	1.0	10. (C1)
HEXACHLOROETHANE	NG/L	1.000	1900. (D4)
OCTACHLOROSTYRENE	NG/L	1.000	N/A
PENTACHLOROBENZENE	NG/L	1.000	74000 (D4)
2,3,6-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,4,5-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,6,A-TRICHLOROTOLUENE	NG/L	5.000	N/A
CHLOROPHENOLS			
2,3,4-TRICHLOROPHENOL	NG/L	50.	N/A
2,3,4,5-TETRACHLOROPHENOL	NG/L	50.	N/A
2,3,5,6-TETRACHLOROPHENOL	NG/L	50.	N/A
2,4,5-TRICHLOROPHENOL	NG/L	50.	2600000 (D4)
2,4,6-TRICHLOROPHENOL	NG/L	50.	5000. (B1)
PENTACHLOROPHENOL	NG/L	50.	60000. (B1)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD FREE CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD TOTAL CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD PH	DMSNLESS	N/A	6.5-8.5 (A4)
FIELD TEMPERATURE	°C	N/A	<15 °C (A1)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	MG/L	.200	30-500 (A4)
CALCIUM	MG/L	.100	100. (F2)
CYANIDE	MG/L	.001	.20 (A1)
CHLORIDE	MG/L	.200	250. (A3)
COLOUR	TCU	.5	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.	400. (F2)
FLUORIDE	MG/L	.01	2.4 (A1)
HARDNESS	MG/L	.50	80-100 (A4)
MAGNESIUM	MG/L	.05	30. (F2)

<u>SCAN/PARAMETER</u>	<u>UNIT</u>	<u>DETECTION</u>	
		<u>LIMIT</u>	<u>GUIDELINE</u>
NITRITE	MG/L	.001	1.0 (A1)
TOTAL NITRATES	MG/L	.02	10. (A1)
NITROGEN TOTAL KJELDAHL	MG/L	.02	N/A
PH	DMSNLESS	N/A	6.5-8.5 (A4)
PHOSPHORUS FIL REACT	MG/L	.0005	N/A
PHOSPHORUS TOTAL	MG/L	.002	.40 (F2)
TOTAL SOLIDS	MG/L	1.	500. (A3)
TURBIDITY	FTU	.02	1.0 (A1)

METALS

ALUMINUM	UG/L	.050	100. (A4)
ANTIMONY	UG/L	.050	146. (D4)
ARSENIC	UG/L	.050	50. (A1)
BARIUM	UG/L	.020	1000. (A1)
BORON	UG/L	.200	5000. (A1)
BERYLLIUM	UG/L	.010	0.20 (H)
CADMIUM	UG/L	.050	5.0 (A1)
COBALT	UG/L	.020	1000. (H)
CHROMIUM	UG/L	.100	50. (A1)
COPPER	UG/L	.100	1000. (A3)
IRON	UG/L	5.0	300. (A3)
MERCURY	UG/L	.01	1.0 (A1)
MANGANESE	UG/L	.050	50. (A3)
MOLYBDENUM	UG/L	.020	500. (H)
NICKEL	UG/L	.100	50. (F3)
LEAD	UG/L	.020	50. (A1)
SELENIUM	UG/L	.200	10. (A1)
SILVER	UG/L	.020	50. (A1)
STRONTIUM	UG/L	.100	2000. (H)
THALLIUM	UG/L	.010	13. (D4)
TITANIUM	UG/L	.100	N/A
URANIUM	UG/L	.020	20. (A2)
VANADIUM	UG/L	.020	100. (H)
ZINC	UG/L	.020	5000. (A3)

PHENOLICS

PHENOLICS (UNFILTERED REACTIVE)	UG/L	.2	2.0 (A3)
---------------------------------	------	----	----------

PESTICIDES & PCB

ALDRIN	NG/L	1.0	700. (A1)
AMETRINE	NG/L	50.	30000. (D3)
ATRAZINE	NG/L	50.	60000. (B3)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700. (G)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300. (G)
GAMMA HEXACHLOROCYCLOHEXANE (LINDANE)	NG/L	1.0	4000. (A1)
ALPHA CHLORDANE	NG/L	2.0	7000. (A1)
GAMMA CHLORDANE	NG/L	2.0	7000. (A1)
BLADEx	NG/L	100.	10000. (B3)
DIELDRIN	NG/L	2.0	700. (A1)
METHOXYCHLOR	NG/L	5.0	100000. (A1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000. (D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	4.0	74000. (D4)
ENDRIN	NG/L	4.0	200. (A1)
ENDOSULFAN SULPHATE (THIODAN SULPHATE)	NG/L	4.0	N/A
HEPTACHLOR EPOXIDE	NG/L	1.0	3000. (A1)

SCAN/PARAMETER	DETECTION		
	UNIT	LIMIT	GUIDELINE
HEPTACHLOR	NG/L	1.0	3000. (A1)
METOLACHLOR	NG/L	500.	50000. (B3)
MIREX	NG/L	5.0	N/A
OXYCHLORDANE	NG/L	2.0	N/A
O,P-DDT	NG/L	5.0	30000. (A1)
PCB	NG/L	20.0	3000. (A2)
O,P-DDD	NG/L	5.0	N/A
PPDDE	NG/L	1.0	30000. (A1)
PPDDT	NG/L	5.0	30000. (A1)
ATRATONE	NG/L	50.	N/A
ALACHLOR	NG/L	500.	35000. (D2)
PROMETONE	NG/L	50.	52500. (D3)
PROPAZINE	NG/L	50.	16000. (D2)
PROMETRYNE	NG/L	50.	1000. (B3)
SENCOR (METRIBUZIN)	NG/L	100.	80000. (B2)
SIMAZINE	NG/L	50.	10000. (B3)

POLYAROMATIC HYDROCARBONS

PHENANTHRENE	NG/L	10.0	N/A
ANTHRACENE	NG/L	1.0	N/A
FLUORANTHENE	NG/L	20.0	42000. (D4)
PYRENE	NG/L	20.0	N/A
BENZO(A)ANTHRACENE	NG/L	20.0	N/A
CHRYSENE	NG/L	50.0	N/A
DIMETHYL BENZO(A)ANTHRACENE	NG/L	5.0	N/A
BENZO(E)PYRENE	NG/L	50.0	N/A
BENZO(B)FLUORANTHENE	NG/L	10.0	N/A
PERYLENE	NG/L	10.0	N/A
BENZO(K)FLUORANTHENE	NG/L	1.0	N/A
BENZO(A)PYRENE	NG/L	5.0	10. (B1)
BENZO(G,H,I)PERYLENE	NG/L	20.0	N/A
DIBENZO(A,H)ANTHRACENE	NG/L	10.0	N/A
INDENO(1,2,3-C,D)PYRENE	NG/L	20.0	N/A
BENZO(B)CHRYSENE	NG/L	2.0	N/A
CORONENE	NG/L	10.0	N/A

SPECIFIC PESTICIDES

TOXAPHENE	NG/L	N/A	5000. (A1)
2,4,5-TRICHLOROBUTYRIC ACID	NG/L	50.	280000. (B1)
(2,4,5-T)			
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.	100000. (A1)
2,4-DICHLOROPHENOXYBUTYRIC ACID	NG/L	200.	18000. (B3)
2,4-D PROPIONIC ACID	NG/L	100.	N/A
DICAMBA	NG/L	100.	87000. (B3)
PICHLORAM	NG/L	100.	2450000. (D3)
SILVEX (2,4,5-TP)	NG/L	50.	10000. (A1)
DIAZINON	NG/L	20.	14000. (A1)
DICHLOROVOS	NG/L	20.	N/A
DURSBAN	NG/L	20.	N/A
ETHION	NG/L	20.	35000. (G)
GUTHION	NG/L	N/A	N/A
MALATHION	NG/L	20.	160000. (G)
MEVINPHOS	NG/L	20.	N/A
METHYL PARATHION	NG/L	50.	7000. (B3)
METHYLTRITHION	NG/L	20.	N/A
PARATHION	NG/L	20.	35000. (B1)

SCAN/PARAMETER	DETECTION		
	UNIT	LIMIT	GUIDELINE
PHORATE (THIMET)	NG/L	20.	35. (D2)
RELDAN	NG/L	20.	N/A
RONNEL	NG/L	20.	N/A
AMINOCARB	NG/L	N/A	N/A
BENONYL	NG/L	N/A	N/A
BUX (METALKAMATE)	NG/L	2000.	N/A
CARBOFURAN	NG/L	2000.	18000. (D3)
CICP (CHLOROPROPHAM)	NG/L	2000.	350000. (G)
DIALATE	NG/L	2000.	30000. (H)
EPTAM	NG/L	2000.	N/A
IPC	NG/L	2000.	N/A
PROPOXUR (BAYGON)	NG/L	2000.	90000. (G)
SEVIN (CARBARYL)	NG/L	200.	70000. (A1)
SUTAN (BUTYLATE)	NG/L	2000.	245000. (D3)

VOLATILES

BENZENE	UG/L	.050	5.0 (B1)
TOLUENE	UG/L	.050	24.0 (B4)
ETHYLBENZENE	UG/L	.050	2.4 (B4)
PARA-XYLENE	UG/L	.100	300. (B4)
META-XYLENE	UG/L	.100	300. (B4)
ORTHO-XYLENE	UG/L	.050	300. (B4)
1,1-DICHLOROETHYLENE	UG/L	.100	7.0 (D1)
ETHYLENE DIBROMIDE	UG/L	.05	50. (G)
METHYLENE CHLORIDE	UG/L	.500	1750. (D3)
TRANS-1,2-DICHLOROETHYLENE	UG/L	.100	350. (D3)
1,1-DICHLOROETHANE	UG/L	.100	N/A
CHLOROFORM	UG/L	.100	350. (A1+)
1,1,1-TRICHLOROETHANE	UG/L	.020	200. (D1)
1,2-DICHLOROETHANE	UG/L	.050	5.0 (D1)
CARBON TETRACHLORIDE	UG/L	.200	5.0 (D1)
1,2-DICHLOROPROPANE	UG/L	.050	10.0 (G)
TRICHLOROETHYLENE	UG/L	.100	5.0 (D1)
DICHLOROBROMOMETHANE	UG/L	.050	350. (A1+)
1,1,2-TRICHLOROETHANE	UG/L	.050	.60 (D4)
CHLORODIBROMOMETHANE	UG/L	.100	350. (A1+)
TETRACHLOROETHYLENE	UG/L	.050	10.0 (C2)
BROMOFORM	UG/L	.200	350. (A1+)
1,1,2,2-TETRACHLOROETHANE	UG/L	.050	0.17 (D4)
CHLOROBENZENE	UG/L	.100	1510. (D3)
1,4-DICHLOROBENZENE	UG/L	.100	5.0 (B1)
1,3-DICHLOROBENZENE	UG/L	.100	130. (G)
1,2-DICHLOROBENZENE	UG/L	.050	200. (B1)
TRIFLUOROCHELOROTOLUENE	UG/L	.100	N/A
TOTAL TRIHALOMETHANES	UG/L	.500	350. (A1)
STYRENE	UG/L	.05	46.5 (D2)

